Regional Investment Programme A2 Bean and Ebbsfleet Junction Transport Model Package 12/03/19

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Table of contents

Chapter		Pages
1.	**Study Overview**	**6**
1.1	Context	6
1.2	Road and Geographic Location	6
1.3	Scheme Objectives	7
1.4	Report Structure	7
2.	**Model Specification**	**9**
2.1	Existing Traffic Models	9
2.2	Description of Overall Transport Modelling Architecture	9
2.3	Modelled Area	10
2.4	Statement of Software Packages and Versions Used	10
2.5	Model Standards and Acceptability	11
2.6	Convergence Criteria and Standards	12
2.7	Interpretation of Guidelines	13
2.8	Assignment Parameters	13
3.	**Summary of Data Collection**	**14**
3.1	Data Sources	14
3.2	Volumetric Data	14
3.3	Calibration and Validation Dataset	14
4.	**Model development**	**19**
4.1	Highway Network Development	19
4.2	Sectoring System	21
4.3	Highway Trip Matrix Development	22
4.4	Assignment Methodology	23
4.5	Generalised Cost	24
5.	**Model Calibration**	**25**
5.1	Introduction	25
5.2	Network Calibration	25
5.3	Route Choice Calibration	25
5.4	Matrix Estimation	26
5.5	Matrix Estimation Monitoring	27
5.6	Convergence Stability and Proximity	34
5.7	Trip Matrix Calibration	34
5.8	Link Flow Calibration	37
6.	**Model Validation**	**38**
6.1	Introduction	38
6.2	Network and Route Choice Validation	38
6.3	Trip Matrix Validation	38

6.4 Assignment Validation 40
6.5 Matrix Integrity Check 42
6.6 Base Model Conclusion 47
7. Operational Model Validation 48
7.1 Introduction 48
7.2 Model Overview 48
7.3 Model Calibration 48
7.4 Model Validation 50
7.5 Operational Model Conclusion 54
Appendices 55

Tables

Table 1-1 Scheme Objectives 8
Table 2-1 Screenline Flow Validation Criterion and Acceptability Guidelines 11
Table 2-2 Link Flow and Turning Movements Validation Criteria and Acceptability Guidelines 11
Table 2-3 Journey Time Validation Criterion and Acceptability Guideline 12
Table 2-4 Matrix Estimation Changes Criteria 12
Table 2-5 Summary of Convergence Criteria 13
Table 2-6 Key Assignment Parameters 13
Table 3-1 Observed Journey Route Time 17
Table 4-1 Comparison of Link Lengths 21
Table 4-2 Summary of LTAM Model Performance across Key Junctions 22
Table 4-3 Summary of Screenline Modelled and Observed Flows for LTAM Matrix 22
Table 4-4 Base 2016 VoT/PPM and VOC/PPK Values by User Class and Time Period 24
Table 5-1 Summary of Screenline Modelled and Observed Flows for Prior Matrices 26
Table 5-2 Change in Matrix Totals 27
Table 5-3 Matrix Zonal Value Changes 28
Table 5-4 Change in Mean and Standard Deviation for Trip Length Distribution 28
Table 5-5 Prior and Post-ME Flow Differences at Sectoral Level for AM Peak 29
Table 5-6 Prior and Post-ME Flow Differences at Sectoral Level for Inter Peak 30
Table 5-7 Prior and Post-ME Flow Differences at Sectoral Level for PM Peak 32
Table 5-8 Highway Convergence Statistics 34
Table 5-9 Summary of Screenline Calibration 34
Table 5-10 Summary of Calibration Sites 37
Table 5-11 Summary of Calibration across Key Junctions 37
Table 6-1 Summary of Screenline Validation 38
Table 6-2 Summary of Individual Sites from Validation Screenlines 40
Table 6-3 Summary of Ad-hoc Validation Sites 40
Table 6-4 Journey Time Validation for AM Peak 41
Table 6-5 Journey Time Validation for Inter Peak 41
Table 6-6 Journey Time Validation for PM Peak 42
Table 6-7 Change in Matrix Totals 42
Table 6-8 Change in Mean and Standard Deviation for Trip Length Distribution (LTAM Validated Base cordon and Post Matrix Estimation) 43
Table 7-1 Traffic Flow GEH Summary 49
Table 7-2 Journey Time Validation 51
Table 7-3 Journey Time Validation - Summary 52

Figures

Figure 1.1 A2 Bean and Ebbsfleet Junction Improvements Location Plan 7
Figure 2.1 Area of Detailed Modelling 10
Figure 3.1 Calibration Count Locations 15
Figure 3.2 Validation Count Locations 15
Figure 3.3 Calibration Screenlines 16

Figure 3.4 Validation Screenlines 16
Figure 3.5 Journey Time Routes 17
Figure 4.1 A2BE Stage 3 Zone Boundaries 20
Figure 4.2 Major Network Updates 20
Figure 4.3 Sectoring System 21
Figure 5.1 Calibration screenlines passing WebTAG criteria – AM Peak 35
Figure 5.2 Calibration screenlines passing WebTAG criteria – Inter Peak 36
Figure 5.3 Calibration screenlines passing WebTAG criteria – PM Peak 36
Figure 6.1 Validation screenlines passing WebTAG criteria – AM Peak 39
Figure 6.2 Validation screenlines passing WebTAG criteria – Inter Peak 39
Figure 6.3 Validation screenlines passing WebTAG criteria – PM Peak 40
Figure 6.4 Trip Length Distribution for Car – AM Peak 44
Figure 6.5 Trip Length Distribution for LGV – AM Peak 44
Figure 6.6 Trip Length Distribution for HGV – AM Peak 44
Figure 6.7 Trip Length Distribution for Car – Inter Peak 45
Figure 6.8 Trip Length Distribution for LGV – Inter Peak 45
Figure 6.9 Trip Length Distribution for HGV – Inter Peak 45
Figure 6.10 Trip Length Distribution for Car – PM Peak 46
Figure 6.11 Trip Length Distribution for LGV – PM Peak 46
Figure 6.12 Trip Length Distribution for HGV – PM Peak 46
Figure 7.1 VISSIM Model Extent 48
Figure 7.2 Journey Time Route Sections in VISSIM Model 51
Figure 7.3 Cumulative Journey Time Comparisons – AM Peak Hour 52
Figure 7.4 Cumulative Journey Time Comparisons – PM Peak Hour 53

1. Study Overview

1.1 Context

1.1.1 The Stage 3 A2 Bean and Ebbsfleet (A2BE) Junction Improvement Transport Model Package Report has been produced to document the development of the base year traffic model compliant with WebTAG. Stage 3 is the initial stage of the Development Phase (Preliminary Design). This involves refining the traffic modelling and forecasting, the environmental, economic and operational assessments for the purposes principally of undertaking consultation, completing and freezing the preliminary design of the preferred route and preparing the Development Consent Order (DCO) submission.

1.1.2 The A2BE Junction Improvements have been identified by the Department for Transport (DfT) Road Investment Strategy (RIS) as a committed scheme subject to other contributions to enable major developments in the vicinity of Ebbsfleet.

1.1.3 The proposed improvements to the Bean and Ebbsfleet junctions form part of the Kent Thameside STP (Strategic Transport Programme) and are considered essential to support the level of development growth proposed for Kent Thameside including Ebbsfleet Garden City which could ultimately lead to the development of some 50,000 homes and 58,000 jobs.

1.2 Road and Geographic Location

1.2.1 The A2 Bean and Ebbsfleet junctions are adjacent, grade separated junctions on the A2 in Kent. The junctions are separated by approximately 2km and their locations are shown in Figure 1.1. Both junctions closely interact with M25/A2 crossings.

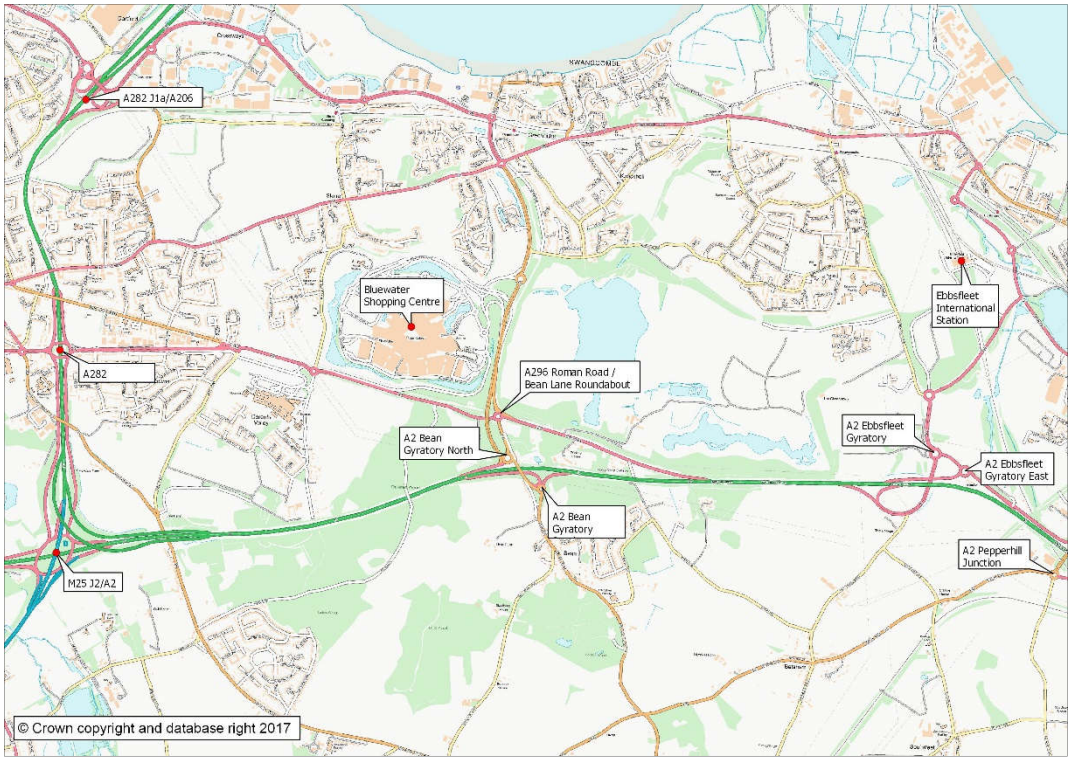
1.2.2 The Bean Junction is the first junction on the A2 to the east of the M25. The Bean junction connects the A296 and B255, which provides access to Bluewater shopping centre, to the A2 and the wider area and is particularly busy at weekends.

1.2.3 The Ebbsfleet Junction on the A2 is located next to the Bean Junction to the east of the M25. It serves the wider area and Ebbsfleet International Rail Station, and connects the A2 to the A2260. It will also provide access to the new and ongoing developments.

1.2.4 In the coming years, the Bean and Ebbsfleet junctions will serve developments such as the Ebbsfleet Garden City development. Previous studies on the A2 Bean and Ebbsfleet Junctions indicated that these two junctions are strategic road access points for the redevelopment of North Kent including Ebbsfleet and the Thames Waterfront Priority Area. Without improvements to both junctions, the road network will become highly congested resulting in considerable delays which will ultimately result in reducing the junction performance and its role in supporting local and regional aspirations for future development and growth.

1.2.5 The above discusses the impact of changes in demand, whilst the biggest single impact of supply change is the introduction of Lower Thames Crossing.

Figure 1.1 A2 Bean and Ebbsfleet Junction Improvements Location Plan



1.3 Scheme Objectives

1.3.1 The principal specific transport objectives are to enhance capacity of the existing A2 Bean Junction and the existing A2 Ebbsfleet Junction, in order to support the planned growth in economic development within Kent Thameside.

1.3.2 The A2 mainline capacity enhancement is not included in the remit and operational aspects resulting from the junction capacity enhancement proposals, must not materially impact upon the existing service levels along the A2 route, in the vicinity of the junctions, until at least the design year is reached.

1.3.3 As the need for these capacity enhancements are driven by that of supporting the Ebbsfleet Development Corporation and Kent Thameside growth development plans and not for reason of addressing existing traffic congestion or poor safety or poor journey times ; the return on capital investment made , as measured by Transport Efficiency Economic appraisal , is not expected to be of a similar order when compared against improvement schemes that are addressing significant network operational problems.

1.3.4 The following high-level objectives have been considered and are shown in Table 1-1.

Table 1-1 Scheme Objectives

Category	Objective
Environment	• Minimise environmental impact in accordance with DMRB. • Where possible, improve air quality relating to vehicle emission in declared AQMAs (Air Quality Management Areas).
Economy	• In combination with other measures (e.g. Kent Thameside Strategic Transport Investment Programme), support economic development and housing growth in Kent Thameside. • Minimise the impact of the developments on the performance of the A2 mainline (performance criteria to be defined).
Customer	• Understanding the needs of all segments of customers (including vulnerable users), stakeholders and partners • Responding to those needs such that the end product delivers an improved customer experience • Assessing the impact of works on road users and communities, minimising disruption and delivering appropriate mitigation measure. The assessment should look at issues through customers eyes.
Safety	• Reduce accident rates for all users. • Minimise the exposure to road workers to harm during construction, operation and maintenance.
Accessibility	• Integrate with the wider strategic objectives of accessibility within Kent Thameside by providing infrastructure within the junction improvements that enables choices of modes of travel for existing and proposed facilities. • Provide access to local sustainable transport options and public transport hubs

1.4 Report Structure

1.4.1 The report is divided into 7 sections the brief details of which are as follows:

- Chapter 2 describes the model specification;
- Chapter 3 summarises the data collated for model development from various sources;
- Chapter 4 describes development of the model;
- Chapter 5 provides details of the highway assignment model calibration process;
- Chapter 6 describes highway assignment model validation of the model; and
- Chapter 7 presents the re-basing of the VISSIM model.

2. Model Specification

2.1 Existing Traffic Models

2.1.1 The following potential traffic models have been reviewed with the view of recommending the most suitable source to be used as the starting point for Stage 3 of the A2 Bean and Ebbsfleet junction improvements:

- The Stage 2 A2 Bean and Ebbsfleet Junction Improvements based on Lower Thames Crossing Model (LTC1A and LTC1B);
- The M20 Junction 3 to 5 Intervention as part of the Smart Motorways Programme;
- South East Regional Transport Model (SERTM); and
- Lower Thames Area Model (LTAM).

2.1.2 Although the LTC1B model was based on the LTCv2 model and is focused on the A2BE area that was used in Stage 2, the demand is too old to support any challenges in the DCO. The M20 model uses more up to date demand from the Highways England provisional mobile phone database, but the A2BE scheme is at the periphery of the simulation area. The SERTM has been specifically developed for the appraisal of SMP, RIS and RIP schemes and uses the provisional mobile phone data, but has less granularity in the area of the scheme. LTAM was developed for Stage 3 work of LTC which is located in the vicinity of A2BE with detailed model network, and was the most suitable to be adopted for A2BE Stage 3 modelling purposes.

2.2 Description of Overall Transport Modelling Architecture

2.2.1 It was agreed with Highways England that a cordon of the Lower Thames Area Model (LTAM) LTAM v1 would be used as the basis for A2BE Stage 3 study and transport modelling work.

2.2.2 Some key features and a brief description of the LTAM base year model include:

- This model uses a March 2016 Base year, with the following time periods retained for A2BE Stage 3 study:
  - AM Peak Hour from 07:00 to 08:00;
  - Inter Peak Average Hour from 09:00 to 15:00; and
  - PM Peak Hour from 17:00 to 18:00.
- The trip matrices obtained from the validated LTAM 2016 Base Year model consist of following 9 user classes (UC):
  - Car Business
  - Car Commute low income
  - Car Commute medium income
  - Car Commute high income
  - Car Other low income
  - Car Other medium income

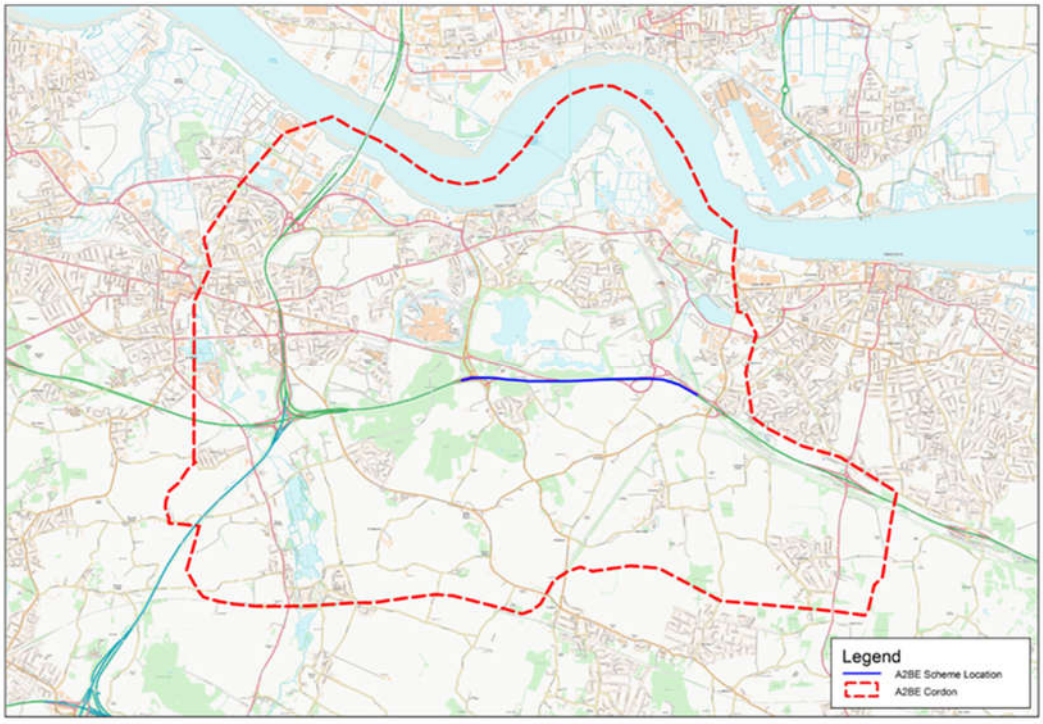
- Car Other high income
- LGV
- HGV

- For A2BE Stage 3 modelling purposes, the LTAM 9 user class matrices will be converted to 5 user classes comprising of: Car Business, Car Commute, Car Other, LGV and HGV.

2.3 Modelled Area

2.3.1 The Area of Detailed Modelling (AoDM) (i.e. the area within which the model will be calibrated and validated and for which it can provide reliable forecasts) is shown in Figure 2.1. The proposed cordoned model extends from the M25 J2 in the west to the A2/ Wrotham Road junction in the east, an area up to River Thames in the north and B255/ B260 junction in the south. The study area covers the roads parallel to the A2, but it does not cover the M20.

Figure 2.1 Area of Detailed Modelling



2.4 Statement of Software Packages and Versions Used

2.4.1 A highway assignment model (SATURN current version 11.3.12W) together with network representation of public transport (PT) is used. The model structure and processes are consistent with the current DfT guidelines and with LTAM so that any significant impacts from the proposed highway scheme can be assessed.

2.4.2 The main benefit of using SATURN for the assignment process is that it is applicable to both urban and rural networks and can model peak hour congestion in sufficient detail. As a combined simulation and assignment model, SATURN also has the advantage that it enables detailed junction modelling. SATURN operates as a static equilibrium highway assignment model which incorporates both simulation and assignment loops. SATURN is jointly developed by the

Institute for Transport Studies, University of Leeds and Atkins. As a "conventional" traffic assignment model it can deal with local, large conurbation, regional or even national models thus making it appropriate for the modelling of traffic in the South East of England.

2.5 Model Standards and Acceptability

2.5.1 Validation and convergence standards for highway assignment models are specified in WebTAG Unit M3.1.

Screenline Flow Validation

2.5.2 Comparisons at screenline level provide information on the quality of the trip matrices. TAG Unit M3.1 describes the validation criterion and acceptability guidelines which are shown in Table 2-1.

Table 2-1 Screenline Flow Validation Criterion and Acceptability Guidelines

Criterion and Measure	Acceptability Guideline
Differences between modelled flows and counts should be less than 5% of the counts	All or nearly all screen-lines

Source: TAG Unit M3.1 Table 1

Link Flow and Turning Movement Validation

2.5.3 There are two measures which are used for individual link validation which are link flow and the GEH statistic. The flow measure of validation is based on the difference between modelled flows and observed counts, with three different criteria set depending on the magnitude of the observed flows. The GEH statistic is also based on the comparison between modelled and observed flow. The form of the GEH statistic is as follows:

$$GEH = \sqrt{\frac{(M-C)^2}{(M+C)/2}}$$

Where M is the modelled flow, and C is the observed flow.

2.5.4 TAG Unit M3.1 describes the Link Flow and Turning Movements Validation Criteria and Acceptability Guidelines which are given in Table 2-2.

Table 2-2 Link Flow and Turning Movements Validation Criteria and Acceptability Guidelines

Criterion and Measures	Acceptability Guideline
Individual flows within 100 veh/hr for flows less than 700 veh/hr	> 85% of cases
Individual flows within 15% for flows from 700 to 2,700 veh/hr	> 85% of cases
Individual flows within 400 veh/hr for flows more than 2,700 veh/hr	> 85% of cases
GEH <5 for individual flows	> 85% of cases

Source: TAG Unit M 3.1 Table 2

Journey Time Validation Criterion

2.5.5 TAG Unit M3.1 describes the Journey Time Validation Criterion and Acceptability Guidelines, which are given in Table 2-3.

Table 2-3 Journey Time Validation Criterion and Acceptability Guideline

Criterion and Measure	Acceptability Guideline
Modelled times along routes should be within 15% of surveyed times (or 1 minute, if higher than 15%)	> 85% of routes

Source: TAG Unit M 3.1 Table 3

Changes Due to Matrix Estimation

2.5.6 WebTAG Unit M3.1 Table 5 suggests a benchmark of criteria to review the extent of the changes due to matrix estimation, these are shown in Table 2-4.

Table 2-4 Matrix Estimation Changes Criteria

Measure	Significance Criteria
Matrix zonal cell levels	Slope within 0.98<Slope<1.02 Intercept near zero R2 in excess of 0.95
Matrix zonal trip ends	Slope within 0.99<Slope<1.01 Intercept near zero R2 in excess of 0.98
Trip length distributions	Means within 5% Standard deviations within 5%
Sector to sector level matrices	Differences within 5%

Source: TAG Unit M 3.1 Table 5

2.5.7 The WebTAG unit states that it is important that the fidelity of the underlying trip matrices is not compromised in order to meet the validation standards. All exceedances of these criteria should be examined and assessed for their importance for the accuracy of the matrices in the fully modelled area.

2.6 Convergence Criteria and Standards

2.6.1 Advice on model convergence is set out in TAG Unit M3.1 (Table 4) and is reproduced in Table 2-5

2.6.2 The convergence of the assignment is measured with respect to two criteria.

- Convergence Stability, which is the condition ‘P>90%’, where ‘P’ is the proportion of modelled links showing a change in flows of less than 5% for four successive iterations; and
- Convergence Proximity, which requires the value of the delta parameter to be less than 1%. The delta parameter measures the total cost of excess travel for all origin-destination pairs in the model. The smaller the value of delta, the closer the model is to choosing the minimum cost route and thereby achieving Wardrop User Equilibrium in the assignment.

Table 2-5 Summary of Convergence Criteria

Convergence Measures	Type	Base Model Acceptable Values
Delta & %GAP	Proximity	Less than 0.1% or at least stable with convergence fully documented and all other criteria met
Percentage of links with flow change (P1) < 1%	Stability	Four consecutive iterations greater than 98%
Percentage of links with cost change (P2) < 1%		Four consecutive iterations greater than 98%
Percentage change in total user costs (V)		Four consecutive iterations less than 0.1% (SUE only)

Source: TAG Unit M 3.1 Table 4

2.7 Interpretation of Guidelines

2.7.1 WebTAG M3.1 states that the achievement of the validation acceptability guidelines does not guarantee that a model is 'fit for purpose' and likewise a failure to meet the specified validation standards does not mean that a model is not 'fit for purpose'. Furthermore, in some models, particularly models of large congested areas, it may be difficult to achieve the link flow and journey time validation acceptability without matrix estimation bringing about changes greater than the limits. In these cases:

- The limits set out for matrix estimation should be respected; and
- The impacts of matrix estimation should be reduced so that they do not become significant.

2.8 Assignment Parameters

2.8.1 Key assignment parameters used in the A2BE Stage 3 model are shown in Table 2-6.

Table 2-6 Key Assignment Parameters

SATURN Parameter Name	Value	Description
KONSTP	5	Both %GAP and RSTOP convergence need to be achieved
STPGAP	0.05	%GAP needs to be below 0.05% (STPGAP) for 4 (NISTOP) consecutive iterations
RSTOP	98.5	Over 98.5% (RSTOP) of links flows change by less than 1% (PCNEAR) for (NISTOP) consecutive Iterations
PCNEAR	1.0	
NISTOP	4	

3. Summary of Data Collection

3.1 Data Sources

3.1.1 There are a number of traffic models that have recently been developed or updated in the vicinity of the A2BE scheme. Due to time constraints, it was not possible to commission new traffic data collection for this stage of model development. It has been agreed with Highways England TPG to utilise the existing traffic data to support the PCF Stage 3 A2BE model development for economic and environmental assessments. The sources of data used in the A2BE Stage 3 highway assignment model calibration and validation have been sourced from the following studies:

- Lower Thames Area Model (LTAM);
- Stage 2 A2 Bean and Ebbsfleet Junction Improvements Model; and
- London Resorts Planning Application Study.

3.1.2 In addition to this, TrafficMaster journey time data for March 2016 was used for journey time validation.

3.2 Volumetric Data

3.2.1 For Stage 3 A2BE Base Year model development, the following data sources were used:

- Automatic Traffic Count (ATC) data –These are classified traffic count data broken down by the AM, IP and PM peak periods.
- Classified Links Counts (CLC) data – These are link count data analysed and broken down by the AM, IP and PM peak periods.
- Classified Junction Counts (CJC) Data –These are classified turning count data on key junctions that are used in the base year matrix estimation process.
- WebTRIS Data – From this source, the 2016 and 2017 daily traffic data broken down by hour has been extracted.

3.2.2 It should be noted that all the volumetric data used in the A2BE Stage 3 model has been normalised to March 2016 to tie in with the LTAM base year.

3.2.3 Traffic data from various sources were processed, after excluding weekends, Bank Holiday and School Holidays. In order to maintain consistency with the LTAM models, the data was processed for the following peak periods:

- AM – the morning peak hour from 07:00 to 08:00
- Inter-Peak(IP) – Average hour between 09:00 and 15:00
- PM – the evening peak hour from 17:00 to 18:00

3.2.4 Further detail is provided in HE543917-ATK-GEN-XX-TN-TR-000001 Transport Data Package.

3.3 Calibration and Validation Dataset

3.3.1 For model calibration and validation, a number of counts were identified to form the calibration and validation screenlines and ad-hoc sites for validation. The

extent of the final data set considered for model calibration and validation is shown in Figure 3.1 and Figure 3.2.

Figure 3.1 Calibration Count Locations

Figure 3.2 Validation Count Locations

3.3.2 For model calibration and validation, a total of eight screenlines in either direction was identified covering the AoDM.

- Out of the eight screenlines, six were used for model calibration as shown in Figure 3.3 and two were used for model validation as shown in Figure 3.4.

Figure 3.3 Calibration Screenlines

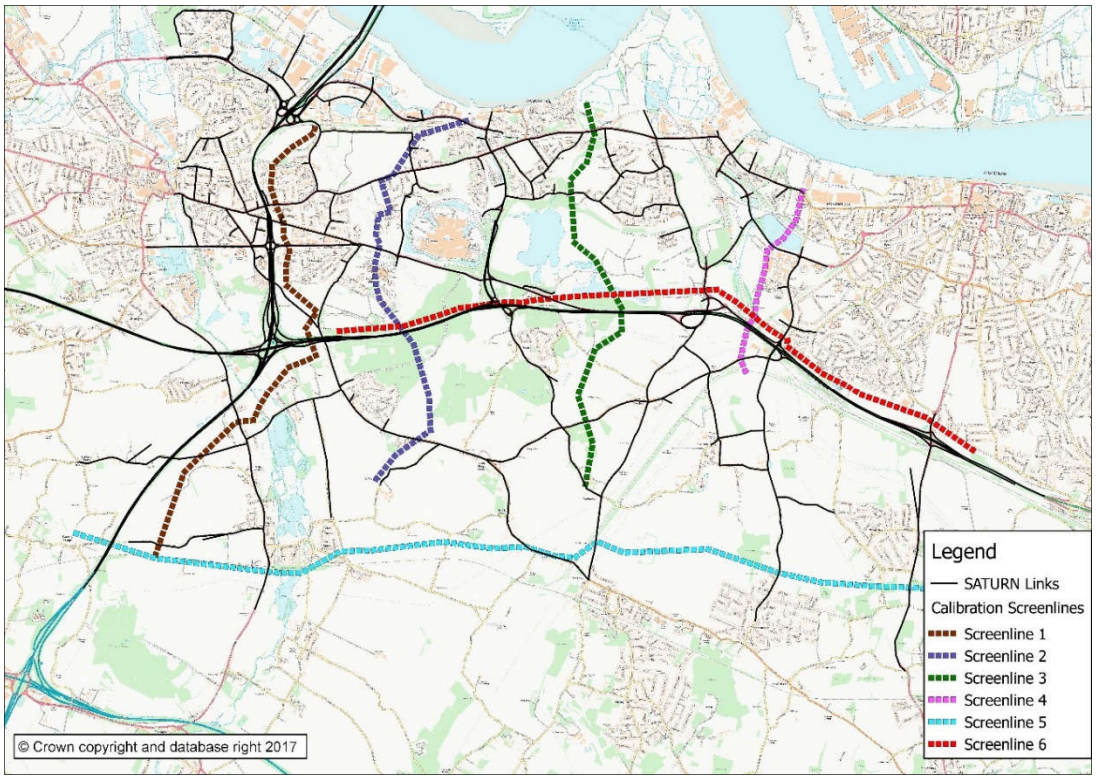
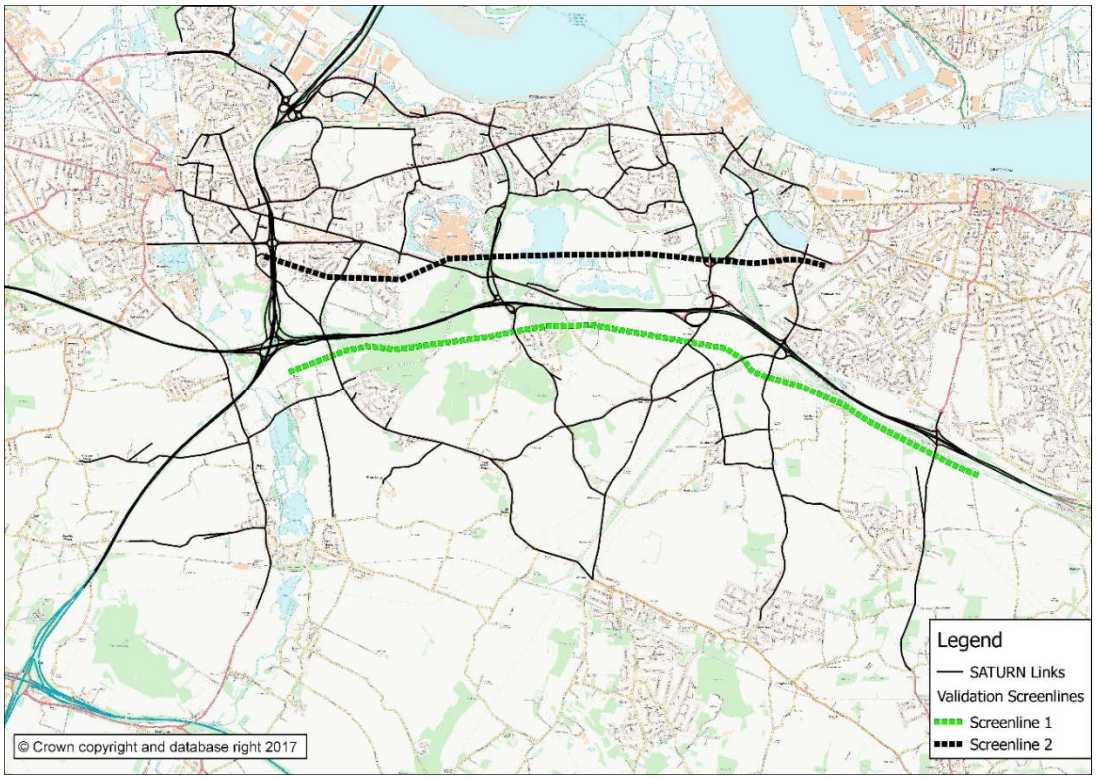


Figure 3.4 Validation Screenlines



Journey Time Data

3.3.3 Observed journey time surveys are used to validate vehicle speeds on the highway network. It is a requirement of the model validation process that the modelled speeds fall within an acceptable range of observed speeds.

3.3.4 Six separate journey time routes have been identified for this study as shown in Figure 3.5. The observed journey times for March 2016 were extracted from TrafficMaster for the six routes.

3.3.5 The average journey times for the six routes were derived for the AM Peak (07:00 to 08:00), Inter-peak (average 09:00 to 15:00) and the PM Peak (17:00 to 18:00). Weekends, Bank Holidays and School Holidays (i.e. 21st March 2016 to 31st March 2016) were excluded from the analysis. A summary of observed journey times for the six routes is presented in Table 3-1.

Figure 3.5 Journey Time Routes

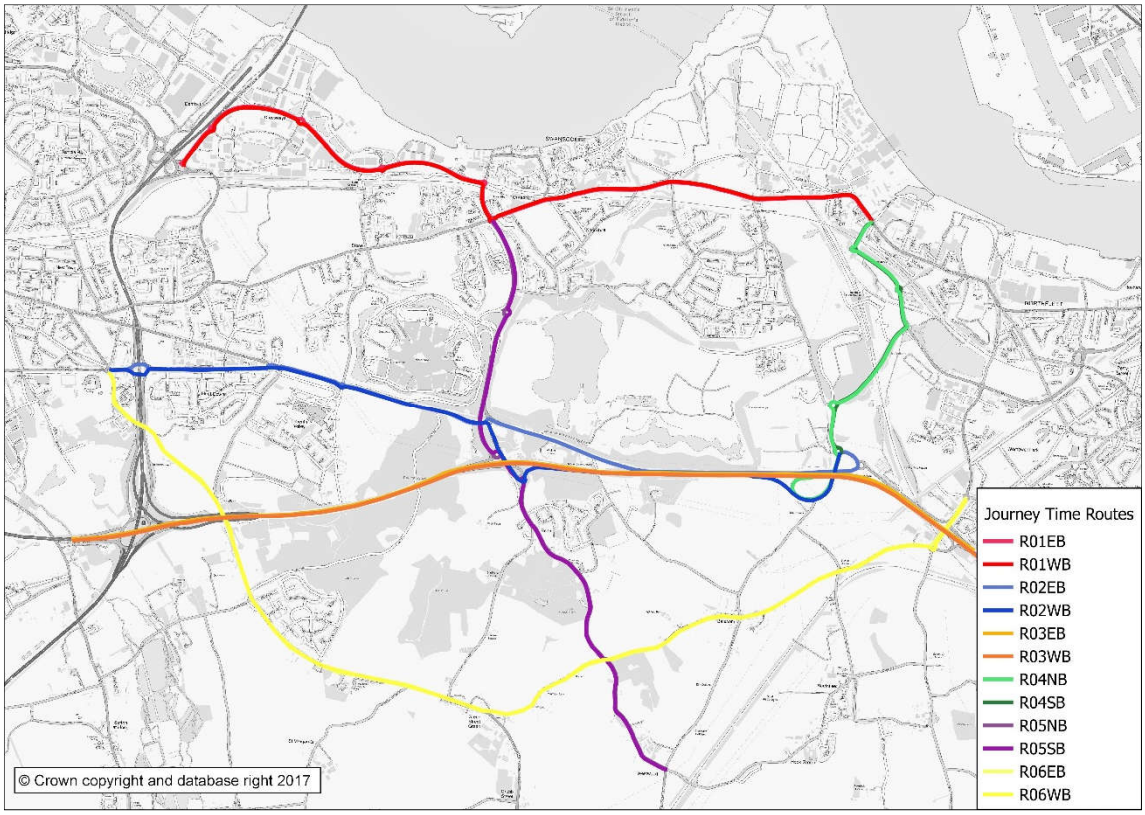


Table 3-1 Observed Journey Route Time

Journey Route	Route Name	Observed Time (Minutes)		
		AM	IP	PM
R01EB	Littlebrook Interchange (A206) to Stonebridge Road/A226 Junction	09:43	09:50	12:36
R01WB		10:53	10:45	12:48
R02EB	Princes Road(A225)/B260 Junction to A2260/A2 Junction	06:47	07:06	10:43
R02WB		09:22	07:27	07:46
R03EB	Darenth Interchange to A2/Hall Road Junction	04:20	04:18	06:06
R03WB		07:30	04:32	04:16

Journey Route	Route Name	Observed Time (Minutes)		
		AM	IP	PM
R04NB	A2260/A2 Junction to Stonebridge Road/A226 Junction	05:38	04:26	04:41
R04SB		04:46	04:14	04:19
R05NB	B255/Hook Green Road Intersection to London Road(A226)/ B255 Junction	06:53	07:02	07:03
R05SB		07:01	06:53	07:10
R06EB	Princes Road(A225)/B260 Junction to Hall Road/Spring Head Road Junction	11:06	10:34	13:42
R06WB		12:31	11:29	12:11

4. Model development

4.1 Highway Network Development

4.1.1 The cordoned LTAM model was reviewed and updated wherever necessary according to the Highways England Regional Traffic Model Network Coding Manual (RTM Network Coding Draft V 08 Final.pdf). During this process, the coding was reviewed against the latest information, including Google Maps and Street View for the following:

- Junction type and configuration;
- Number of lanes per arm and turn allocation;
- Turn saturation flows;
- Signal stages, movements and timings (based on actual observations / from existing models);
- Link lengths;
- Speed;
- Gap acceptance parameters;
- Speed Flow Curve;
- Zone centroid connectors; and
- Banned turns.

4.1.2 The LTAM zoning system used in Stage 2 A2BE for the AoDM remained the same for Stage 3 A2BE model area (see Figure 4.1). The zone centroid connectors were checked to ensure traffic is loading at correct points on the network.

4.1.3 The major changes to the network (Junction configuration, loading points) are highlighted in Figure 4.2.

4.1.4 The cordon model link lengths were checked against the ITN link lengths and GIS shaped network link lengths. The shaped network link length was found to be closer to the ITN length as shown in Table 4-1. The network link lengths were updated with the shaped network link lengths to represent the actual highway lengths.

4.1.5 The length of the stub links were retained the same as LTAM. There were inconsistencies for few stub links in the IP when compared to the AM and PM peaks. The stub link lengths for the AM peak were adopted for those stubs to make the network consistent across all peak periods.

Figure 4.1 A2BE Stage 3 Zone Boundaries

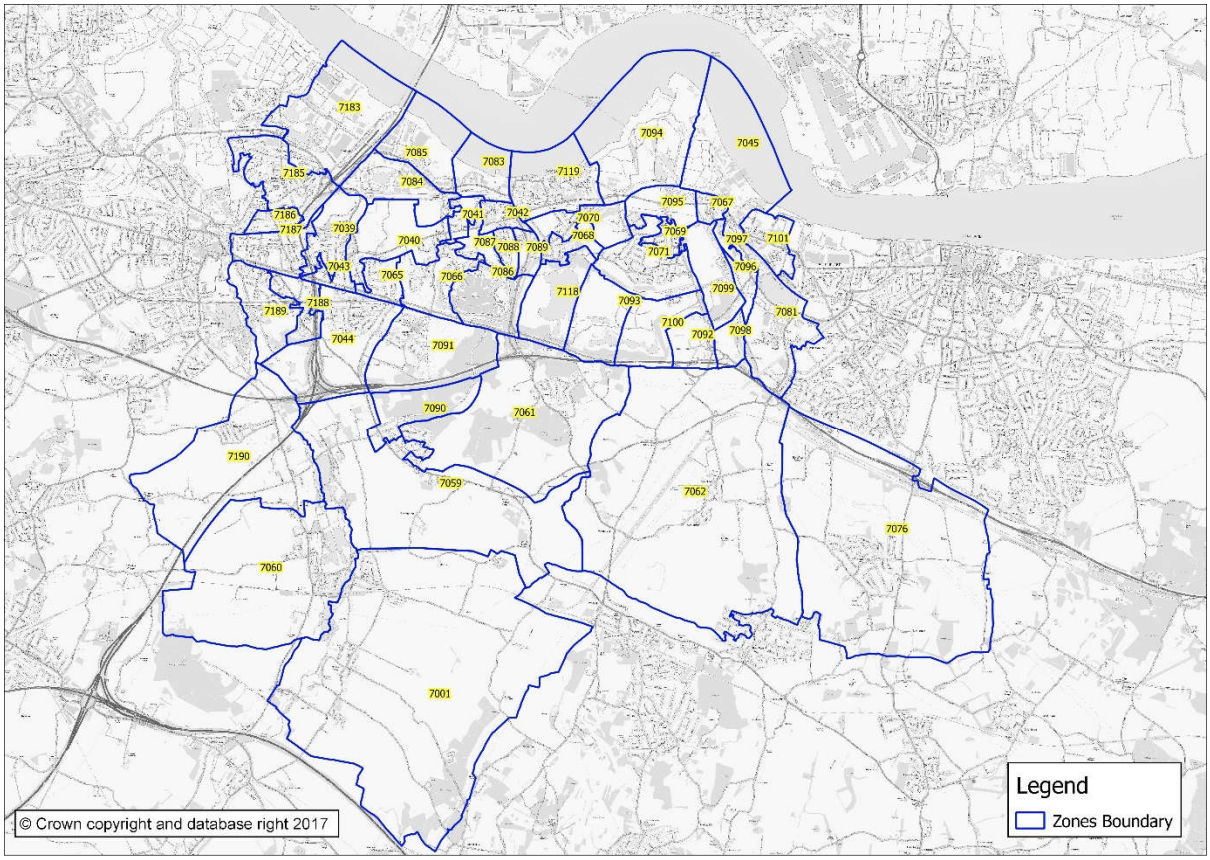


Figure 4.2 Major Network Updates

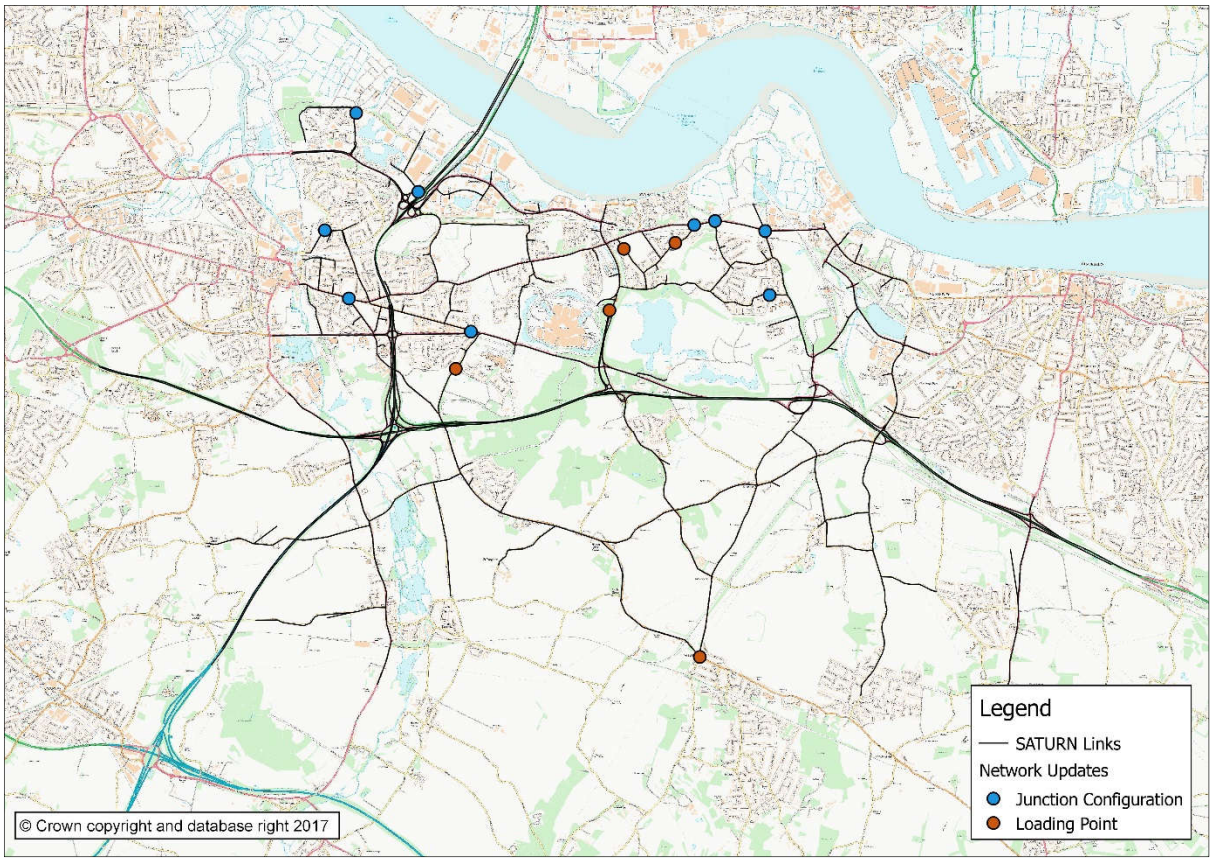


Table 4-1 Comparison of Link Lengths

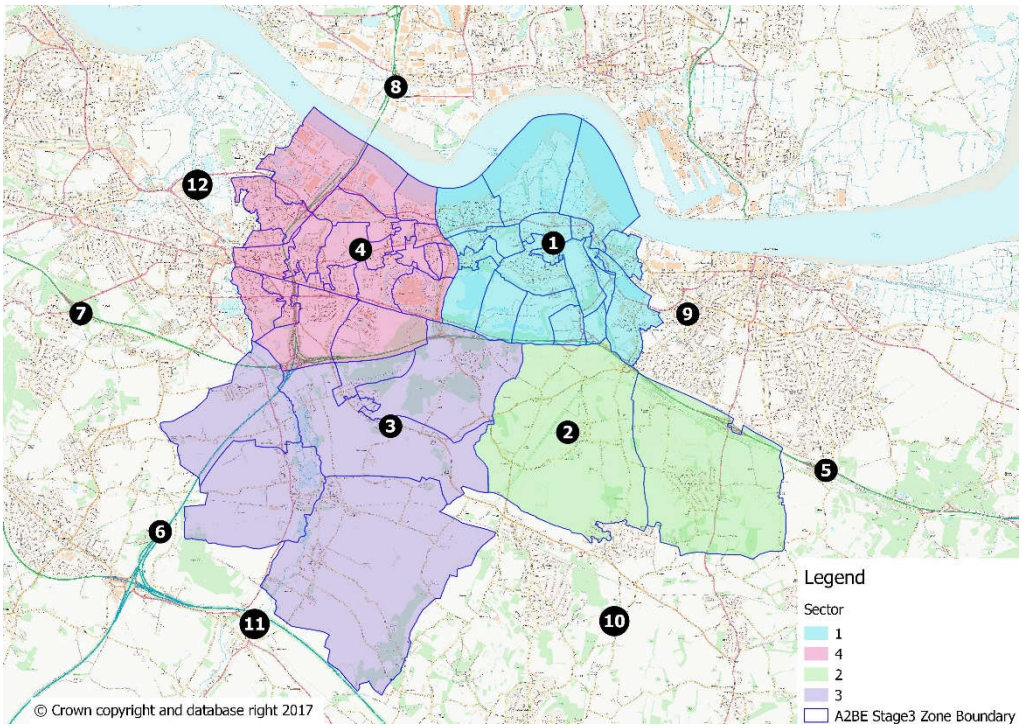
Journey Route	ITN Length (km)	Shaped Length (km)	Modelled Length (km)
R01EB	6.29	6.27	6.53
R01WB	6.33	6.32	6.53
R02EB	6.34	6.39	6.74
R02WB	6.63	6.64	7.44
R03EB	7.37	7.35	7.32
R03WB	7.38	7.41	7.28
R04NB	3.30	3.18	3.28
R04SB	3.30	3.28	3.82
R05NB	5.07	5.07	5.37
R05SB	5.15	5.05	5.26
R06EB	8.74	8.75	9.04
R06WB	8.79	8.75	9.14

4.2 Sectoring System

4.2.1 The model area was divided into twelve-sectors in order to analyse the impact of matrix estimation. The sectors are made up of a number of model zones as shown in Figure 4.3.

4.2.2 Sectors 1-4 are internal sectors, sectors 5-8 are external sectors encompassing A2-M2 roads and sectors 9-12 are external sectors representing other roads.

Figure 4.3 Sectoring System



4.3 Highway Trip Matrix Development

4.3.1 The matrices obtained from the cordoned LTAM base year model were compared with the observed counts at the screenline level and at the key junctions as shown in Table 4-3. The validated cordoned LTAM model did not perform as well as the model in general across the key A2BE junctions, as shown in Table 4-2. This is not unexpected where a small cordon is taken from a large strategic model and hence adjustments to the prior matrices were undertaken along with further refinement through matrix estimation on the cordoned matrix to improve the local area calibration and validation.

4.3.2

Table 4-2 Summary of LTAM Model Performance across Key Junctions

Junction	No. of Counts	Calibration counts passing flow criteria (GEH/Flow)		
		AM	IP	PM
Bean North	7	29%	29%	43%
Bean South	6	50%	50%	83%
Ebbsfleet East	3	33%	33%	33%
Ebbsfleet West	12	83%	100%	75%
Hall Road/A2 On Off Slip Junction	5	20%	60%	40%
Hall Road/New Barn Road Roundabout	12	75%	58%	58%

Table 4-3 Summary of Screenline Modelled and Observed Flows for LTAM Matrix

Screenline	Direction	Percent Difference		
		AM	IP	PM
Calibration Screenline 1	EB	-3%	-6%	-5%
	WB	0%	-7%	-5%
Calibration Screenline 2	EB	-5%	-10%	-4%
	WB	-10%	-11%	-17%
Calibration Screenline 3	EB	-5%	-4%	-2%
	WB	2%	1%	0%
Calibration Screenline 4	EB	-1%	-2%	5%
	WB	-3%	-4%	4%
Calibration Screenline 5	NB	-10%	-11%	-10%
	SB	1%	-7%	-9%
Calibration Screenline 6	NB	-22%	-6%	-6%
	SB	-2%	-9%	-6%
Validation Screenline 1	NB	-29%	-27%	-23%
	SB	-25%	-22%	-17%
Validation Screenline 2	NB	-9%	-12%	-14%
	SB	-6%	-10%	-6%

Demand Segmentation

4.3.3 As mentioned earlier for A2BE Stage 3 modelling purposes the LTAM 9 user class matrices were converted to the following five user classes:

- Car – Business;
- Car – Commuting;
- Car – Other purposes;
- LGV; and
- HGV.

Modelled Time Periods

4.3.4 LTAM matrices were developed for the following time periods and these were retained in the matrix building process for the A2BE Stage 3 model work:

- AM Peak Hour from 07:00 to 08:00;
- Inter Peak Average Hour from 09:00 to 15:00; and
- PM Peak Hour from 17:00 to 18:00.

Prior Matrix

4.3.5 The cordoned base matrices obtained from LTAM were compared with observed values at the screenline level as shown in Table 4-3. The screenlines capturing North-South movement varied significantly when the cordoned LTAM assigned matrices were compared with the observed counts.

4.3.6 The links along calibration screenlines 5 and 6 which capture the North-South movement were adjusted to the observed counts by factoring, using select link analysis in SATURN. This process ensured that the pattern of movements as observed in the LTAM cordon model is retained. The matrices obtained after adjustment are referred to as the prior matrices here on.

4.4 Assignment Methodology

4.4.1 The assignment of trips to the highway network was undertaken using a standard ‘Wardrop User Equilibrium’ approach, which seeks to minimise travel costs for all vehicles in the network. The Wardrop User Equilibrium is based on the following proposition:

> *“Traffic arranges itself on congested networks such that the cost of travel on all routes used between each O-D pair is equal to the minimum cost of travel and all unused routes have equal or greater cost”*

4.4.2 The Wardrop User Equilibrium as implemented in SATURN is based on the ‘Frank-Wolfe Algorithm’, which employs an iterative process. This process is based on successive ‘All or Nothing’ iterations, which are combined to minimise an ‘Objective Function’. The travel costs are recalculated on each iteration, and then compared to the previous iteration. The process is terminated once

successive iteration costs have not changed significantly. This process results in possible multi-routing between any origin-destination pair.

4.5 Generalised Cost

4.5.1 The cost of travel is expressed in terms of generalised cost minutes, which can be related back to values of time and out-of-pocket costs in accordance with the TAG Unit A1.3. The coefficients for the individual components of generalised costs were calculated using TAG Unit A1.3.

4.5.2 The values of Pence Per Minute (PPM) and Pence Per Kilometre (PPK) are shown in Table 4-4 based on WebTAG, TAG data book, December 2017 Version 1.9.1 for each user class to represent the base year 2016 costs. To derive the Pence Per Kilometre (PPK) value, the average network speed of LTAM cordon was used (63.5kph, 75.1kph and 63.2kph for AM, IP and PM peak respectively)

4.5.3 As stated in paragraph 2.8.8 of TAG Unit M3.1 - Highway Assignment Modelling, the value of time given in TAG Unit A1.3 for HGVs related to the driver's time and did not take into account the influence of owners on the routing of these vehicles. On these grounds, it may be considered appropriate to use a value of time around twice the TAG Unit A1.3 values

Table 4-4 Base 2016 VoT/PPM and VOC/PPK Values by User Class and Time Period

Class	AM Peak		Inter Peak		PM Peak	
	PPM	PPK	PPM	PPK	PPM	PPK
Car Business	30.21	11.74	30.95	11.40	30.64	11.75
Car Commute	20.26	5.59	20.59	5.58	20.33	5.60
Car Other	13.98	5.59	14.89	5.58	14.64	5.60
LGV	21.35	13.27	21.35	13.71	21.35	13.27
HGV	43.36	43.16	43.36	42.26	43.36	43.21

Table Source: WebTAG data book, v1.9.1 December 2017

5. Model Calibration

5.1 Introduction

5.1.1 TAG Unit M3.1 notes 'It is important to bear in mind that the role of calibration is to develop a model that is fit for purpose and does not produce unduly misleading or biased results that are material in the context of the schemes or policies being tested'.

5.2 Network Calibration

5.2.1 The calibration of the highway model has been undertaken using a standard approach where the network is adjusted to ensure that the model gives plausible and expected traffic flows, routing and speeds.

5.2.2 The calibration procedure involved the following activities:

- Checks to ensure that link speeds on the network are realistic, and speed/ flow calculations are implemented correctly;
- Checks to ensure that delay calculations at junctions are realistic;
- Adjustment and checking of the network to ensure plausible and realistic routeing of traffic; and
- Checks to ensure that link lengths, turn saturation flows and capacities are correct.

5.2.3 Other checks carried out include:

- Counts in excess of capacity – where an observed count is noticeably higher than the coded network capacity, the capacities are checked and amended if necessary;
- Excessive junction delays – the largest node delays and the largest differences between the link travel times and the observed data from TrafficMaster are checked;
- Low/ High flows – where the modelled flow is substantially different from the observed count, this indicates the possibility of a bottleneck at an upstream junction, where a competing route is more attractive, or where delays at junctions are not well represented in the model. These can then be investigated to ensure that the coding in the model is correct;
- Poor reproduction of observed travel times - detailed comparisons of modelled travel times against the observed journey time routes reveal locations where additional modifications to junction parameters may be necessary in order to replicate the observed levels of delay.

5.3 Route Choice Calibration

5.3.1 The ability of the model to robustly represent route choice within the network depends on:

- Correct zone sizing and definition, network structure and the realism of the zone connections to the modelled network (centroid connectors);
- The accuracy of the network coding;

- The accuracy with which delays at junctions and link cruise speeds are modelled; and
- The accuracy of the trip matrices, which, when assigned, will impact the route choice process (via the flow/delay and speed/flow relationships).

5.3.2 As part of the calibration stage, traffic routing was checked between ten selected OD pairs in the model by comparing modelled routing against the observed routing from other sources, such as, journey planners and local knowledge of the network.

5.4 Matrix Estimation

5.4.1 The prior matrices obtained after adjustment of the LTAM cordoned base matrices, as described in Section 4.3 were assigned to the network. The modelled flows were compared to the observed counts for the screenlines to determine the extent of matrix estimation that was required.

5.4.2 A comparison of the observed and modelled flows across the screenlines is summarised in Table 5-1 for the prior trip matrices for all modelled time periods. The majority of the screenlines are within 10% of the observed counts. Out of sixteen screenlines (8 in each directon), eleven screenlines in the AM and IP and eight screenlines in the PM peak were within the 5% of the observed counts.

Table 5-1 Summary of Screenline Modelled and Observed Flows for Prior Matrices

Screenline	Direction	Percent Difference		
		AM	IP	PM
Calibration Screenline 1	EB	0.5%	-4.4%	-8.0%
	WB	0.6%	-4.5%	-1.9%
Calibration Screenline 2	EB	-0.1%	-6.8%	-6.3%
	WB	-7.5%	-7.2%	-13.2%
Calibration Screenline 3	EB	-2.3%	-4.9%	-7.2%
	WB	6.5%	3.8%	0.8%
Calibration Screenline 4	EB	-0.9%	-3.6%	-6.1%
	WB	0.9%	-1.5%	-1.4%
Calibration Screenline 5	NB	1.3%	-0.1%	0.6%
	SB	0.2%	-0.9%	-1.4%
Calibration Screenline 6	NB	-2.7%	4.6%	3.0%
	SB	0.8%	-4.0%	1.1%
Validation Screenline 1	NB	-6.9%	-4.7%	-5.5%
	SB	-11.1%	-7.1%	-1.3%
Validation Screenline 2	NB	2.7%	-5.6%	-7.2%
	SB	-6.4%	-6.6%	-10.0%

5.4.3 Matrix estimation was subsequently applied to the prior trip matrices to improve their calibration using the SATURN SATME2 process based on the following approach:

- The observed individual traffic counts from the calibration screenlines and turn counts at Bean, Ebbsfleet and Pepper Hill junctions were used to constrain/ estimate the prior matrices.
- Constraints were applied to Cars, LGVs and HGVs; and
- Balancing factor (XAMAX) of 2 was used for Cars, LGVs and HGVs. This limit is considered appropriate to allow the required changes to the matrix to satisfy the majority of counts whilst limiting excessive changes to the matrix.

5.5 Matrix Estimation Monitoring

5.5.1 Table 5-2 shows the change in matrix totals due to the matrix estimation process. The impact of matrix estimation on cars, LGVs and HGVs is less than 6% for all peak periods. The post matrix estimation flows were compared with the benchmark of criteria as stated in Table 2-4 to review the extent of the changes due to matrix estimation.

Table 5-2 Change in Matrix Totals

AM peak	Prior (PCU)	Post (PCU)	Difference %
Car	25,546	26,244	3%
LGV	6,640	6,738	1%
HGV	8,220	8,178	-1%
Total	40,406	41,160	2%
Inter-peak	**Prior (PCU)**	**Post (PCU)**	**Difference %**
Car	21,191	22,410	6%
LGV	4,457	4,539	2%
HGV	9,112	9,111	0%
Total	34,761	36,059	4%
PM peak	**Prior (PCU)**	**Post (PCU)**	**Difference %**
Car	33,707	35,260	5%
LGV	5,238	5,401	3%
HGV	5,732	5,658	-1%
Total	44,676	46,318	4%

Matrix Zonal Values

5.5.2 Matrix zonal changes by time period for cars and all vehicles (Total) are presented in Table 5-3, and the scatter plots are presented in Appendix A. The R-square is greater than 0.99, which is well within the WebTAG requirement of greater than 0.95. The slope for matrix zonal cell values is within the WebTAG requirement (0.98-1.02) for all the time periods. With the exception of zonal column trip ends for Cars in the PM Peak, the slope for zonal trip ends is also within the WebTAG requirement (0.99-1.01) for all the time periods.

Table 5-3 Matrix Zonal Value Changes

Measure		AM Peak		Inter Peak		PM Peak	
		Cars	Total	Cars	Total	Cars	Total
Matrix Zonal Cell Values	Slope	0.99	0.99	1.00	1.00	1.00	1.00
	Intercept	0.05	0.03	0.07	0.04	0.08	0.05
	R-square	1.00	1.00	0.99	1.00	0.99	0.99
Matrix Zonal Trip Ends (Columns)	Slope	1.00	0.99	1.01	1.00	1.02	1.01
	Intercept	8.64	12.54	13.27	15.79	11.99	15.26
	R-square	1.00	1.00	1.00	1.00	1.00	1.00
Matrix Zonal Trip Ends (Rows)	Slope	1.00	0.99	1.01	1.00	1.01	1.00
	Intercept	1.93	2.69	2.88	3.88	3.63	4.28
	R-square	1.00	1.00	1.00	1.00	1.00	1.00

Trip Length Distribution

5.5.3 A summary results of comparison of trip length distribution between the pre- and post-matrix matrix estimation is shown in Table 5-4 with further details and graphics contained in Appendix A. The mean and standard deviation are well within the 5% criteria stated by WebTAG, indicating that the prior matrix trip length distribution is preserved in the post matrix estimation procedure.

Table 5-4 Change in Mean and Standard Deviation for Trip Length Distribution

Time Period	Cars		LGV		HGV	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
AM Peak	-0.9%	-0.5%	-1.4%	1.1%	0.1%	0.4%
Inter Peak	-2.1%	-0.9%	-1.3%	1.5%	-0.2%	0.9%
PM Peak	-0.6%	-1.0%	-0.6%	0.8%	0.5%	0.6%

Sector to Sector Level Matrices

5.5.4 Table 5-5 to Table 5-7 shows the impact of matrix estimation process at a sector level. The analysis below uses a twelve-sector system developed as shown in Figure 4.3.

5.5.5 The absolute change along with percentage change is shown for cells with changes more than 50 PCUs. For cells with changes less than 50 PCUs, the change is shown as NA.

5.5.6 Sector 4, which comprises the Bluewater Shopping Centre and Crossways Business Park showed significant change especially in the PM Peak. This is because of the required changes made to matrices to satisfy the local movement to these zones, which were not captured in the cordoned matrices obtained from LTAM.

Table 5-5 Prior and Post-ME Flow Differences at Sectoral Level for AM Peak

Prior Sector to Sector Matrix													
Sectors	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
1	64	16	14	365	223	142	242	117	483	68	3	146	1,882
2	49	5	1	46	149	51	93	22	36	105	1	9	567
3	29	2	49	268	9	10	29	59	6	94	503	422	1,482
4	174	37	118	724	297	976	285	373	220	141	49	1,315	4,708
5	267	73	11	960	0	682	2,560	1,554	297	65	16	214	6,699
6	131	13	39	867	414	0	850	3,396	221	26	0	410	6,366
7	187	15	33	640	1,248	1,047	0	518	261	62	0	6	4,018
8	193	12	27	510	1,462	3,737	404	0	182	68	0	672	7,266
9	240	70	7	189	624	384	778	194	14	534	7	52	3,091
10	399	118	148	199	65	9	51	139	418	0	44	190	1,779
11	0	1	325	68	0	0	0	0	1	48	27	141	611
12	43	3	187	822	115	347	0	239	45	36	99	0	1,936
Total	1,775	364	959	5,658	4,607	7,386	5,292	6,611	2,182	1,246	749	3,577	40,406
Post Sector to Sector Matrix													
Sectors	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
1	60	20	22	485	326	152	244	156	580	86	5	228	2,363
2	60	5	2	71	158	52	95	22	48	108	2	10	634
3	42	2	52	334	19	15	42	71	13	83	472	455	1,600
4	188	23	136	842	324	883	284	358	185	143	49	1,299	4,714
5	367	81	39	898	0	672	2,543	1,544	332	94	38	216	6,824
6	175	12	56	712	418	0	858	3,434	179	12	0	414	6,270
7	250	13	43	598	1,247	1,038	0	518	214	33	0	6	3,960
8	218	11	19	505	1,461	3,709	404	0	162	37	0	672	7,197
9	293	96	19	194	559	391	799	205	23	551	14	65	3,209
10	375	122	142	194	86	5	28	84	477	0	29	201	1,743
11	0	1	309	64	0	0	0	0	2	37	18	171	601
12	56	3	207	864	119	345	0	239	40	51	121	0	2,044
Total	2,085	389	1,044	5,761	4,717	7,261	5,298	6,632	2,254	1,234	749	3,736	41,160
Difference (Post - Prior) Sector to Sector Matrix													
Sectors	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
1	-4	4	8	120	103	10	2	39	96	18	2	82	482
2	12	0	1	25	9	1	2	0	13	2	1	1	66
3	12	0	3	66	9	5	13	12	7	-11	-31	33	118
4	14	-14	18	117	27	-93	-1	-15	-34	3	0	-17	6
5	100	8	28	-61	0	-10	-17	-10	34	29	22	2	125

6	44	-1	17	-154	4	0	9	39	-42	-14	0	4	-96
7	64	-2	9	-42	-1	-9	0	0	-47	-30	0	0	-57
8	25	-1	-8	-5	-1	-29	0	0	-20	-31	0	0	-70
9	53	26	12	5	-65	6	21	12	9	17	7	13	118
10	-24	4	-6	-5	21	-4	-23	-55	59	0	-15	11	-37
11	0	0	-17	-5	0	0	0	0	1	-10	-9	30	-10
12	12	0	20	42	4	-3	0	0	-5	15	22	0	108
Total	309	25	85	103	110	-125	6	21	71	-12	-1	159	753

% Flow Differences													
Sectors	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
1	NA	NA	NA	33%	46%	NA	NA	NA	20%	NA	NA	56%	26%
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12%
3	NA	NA	NA	25%	NA	NA	NA	NA	NA	NA	NA	NA	8%
4	NA	NA	NA	16%	NA	-10%	NA	NA	NA	NA	NA	NA	NA
5	38%	NA	NA	-6%	NA	NA	NA	NA	NA	NA	NA	NA	2%
6	NA	NA	NA	-18%	NA	NA	NA	NA	NA	NA	NA	NA	-2%
7	34%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-1%
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-1%
9	22%	NA	NA	NA	-10%	NA	NA	NA	NA	NA	NA	NA	4%
10	NA	NA	NA	NA	NA	NA	NA	-40%	14%	NA	NA	NA	NA
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6%
Total	17%	NA	9%	2%	2%	-2%	NA	NA	3%	NA	NA	4%	2%

Table 5-6 Prior and Post-ME Flow Differences at Sectoral Level for Inter Peak

Prior Sector to Sector Matrix													
Sectors	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
1	53	21	12	271	306	115	235	125	388	82	4	74	1,686
2	34	3	2	23	132	15	23	9	53	73	1	4	371
3	23	3	25	244	38	26	82	81	15	116	298	348	1,300
4	250	30	131	873	512	563	398	358	410	173	42	1,019	4,759
5	370	87	52	679	0	341	1,196	1,475	462	113	5	143	4,922
6	186	15	35	589	301	0	729	3,004	180	35	0	359	5,433
7	303	22	61	801	1,125	721	0	338	273	71	0	10	3,726
8	167	14	27	408	1,234	2,600	316	0	173	44	0	435	5,418
9	342	87	20	371	564	187	242	122	12	525	3	62	2,537
10	163	120	115	214	122	20	85	56	477	0	43	80	1,496
11	0	1	351	35	1	0	0	0	0	62	14	136	600

12	78	4	287	1,090	139	353	0	313	65	66	118	0	2,512
Total	1,969	408	1,120	5,597	4,473	4,939	3,305	5,881	2,510	1,360	527	2,670	34,761

Post Sector to Sector Matrix

Sectors	1	2	3	4	5	6	7	8	9	10	11	12	Total
1	58	30	21	384	390	134	266	147	496	138	6	123	2,194
2	60	3	2	29	155	13	19	9	84	72	1	4	450
3	48	2	27	294	44	23	84	62	27	93	298	351	1,353
4	343	34	183	1,098	550	589	415	338	380	191	43	1,100	5,262
5	367	94	54	656	0	341	1,194	1,473	424	90	5	141	4,839
6	216	15	31	595	302	0	735	3,035	151	18	0	363	5,459
7	357	21	47	774	1,116	722	0	338	214	49	0	10	3,649
8	243	13	31	413	1,217	2,601	316	0	149	33	0	435	5,452
9	384	126	26	354	516	192	242	118	21	567	6	65	2,617
10	190	105	93	218	93	11	58	33	511	0	34	73	1,419
11	0	1	371	29	1	0	0	0	1	47	13	179	640
12	118	4	330	1,203	135	352	0	313	54	83	133	0	2,725
Total	2,384	447	1,216	6,046	4,519	4,979	3,329	5,864	2,512	1,380	539	2,845	36,059

Difference (Post - Prior) Sector to Sector Matrix

Sectors	1	2	3	4	5	6	7	8	9	10	11	12	Total
1	5	9	9	114	84	18	31	22	108	56	2	49	508
2	26	0	0	6	23	-2	-4	-1	31	-2	0	0	79
3	25	-1	2	51	7	-4	2	-19	11	-24	0	3	53
4	93	4	51	225	38	27	17	-20	-30	18	1	81	504
5	-3	7	2	-23	0	1	-2	-1	-38	-23	0	-2	-83
6	30	-1	-4	6	1	0	6	30	-29	-17	0	4	26
7	54	-2	-14	-27	-9	2	0	0	-59	-22	0	0	-77
8	76	-1	4	5	-17	1	0	0	-24	-10	0	0	34
9	42	39	6	-17	-48	5	0	-4	9	42	3	4	79
10	26	-16	-22	4	-30	-8	-26	-24	34	0	-9	-6	-77
11	0	0	19	-7	0	0	0	0	0	-15	-1	42	40
12	40	0	43	113	-4	-1	0	0	-10	17	15	0	213
Total	415	39	95	449	46	39	23	-17	3	20	12	175	1,299

% Flow Differences

Sectors	1	2	3	4	5	6	7	8	9	10	11	12	Total
1	NA	NA	NA	42%	28%	NA	NA	NA	28%	68%	NA	NA	30%
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21%
3	NA	NA	NA	21%	NA	NA	NA	NA	NA	NA	NA	NA	4%
4	37%	NA	39%	26%	NA	NA	NA	NA	NA	NA	NA	8%	11%

5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-2%
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7	18%	NA	NA	NA	NA	NA	NA	NA	-22%	NA	NA	NA	-2%
8	46%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3%
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-5%
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12	NA	NA	NA	10%	NA	NA	NA	NA	NA	NA	NA	NA	8%
Total	21%	NA	9%	8%	NA	NA	NA	NA	NA	NA	NA	7%	4%

Table 5-7 Prior and Post-ME Flow Differences at Sectoral Level for PM Peak

Prior Sector to Sector Matrix													
Sectors	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
1	69	63	21	319	826	146	285	73	462	196	6	40	2,507
2	35	3	2	20	227	14	24	7	55	77	1	2	466
3	26	11	65	381	175	41	84	140	37	198	377	506	2,041
4	377	53	242	1,028	928	920	630	1,284	473	264	87	1,456	7,743
5	394	178	82	717	0	472	1,550	1,007	552	157	6	42	5,156
6	138	46	63	549	508	0	718	2,667	385	19	0	234	5,328
7	526	67	151	798	2,140	962	0	353	499	78	0	0	5,574
8	206	23	31	307	1,852	2,663	502	0	239	47	6	468	6,343
9	468	104	17	350	800	165	332	111	3	683	2	19	3,055
10	184	198	137	210	207	25	105	36	541	0	33	83	1,760
11	0	8	855	83	55	0	0	0	17	66	53	202	1,338
12	143	7	405	1,398	236	219	0	599	86	116	158	0	3,365
Total	2,565	762	2,072	6,159	7,954	5,626	4,230	6,277	3,349	1,901	729	3,052	44,676
Post Sector to Sector Matrix													
Sectors	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
1	69	61	37	446	801	150	289	78	525	227	12	68	2,765
2	50	3	2	34	248	14	23	7	73	79	1	2	537
3	54	7	68	579	185	31	58	131	36	217	367	519	2,251
4	447	48	328	1,262	1,361	890	603	1,275	573	333	103	1,503	8,726
5	409	167	61	776	0	485	1,572	1,005	495	120	6	41	5,136
6	144	41	63	580	504	0	716	2,683	352	12	0	234	5,330
7	568	59	108	854	2,131	975	0	353	490	49	0	0	5,589
8	207	21	31	249	1,797	2,685	502	0	227	32	7	468	6,225
9	493	97	22	371	682	174	341	109	5	723	5	23	3,045
10	180	215	112	286	196	18	75	18	543	0	30	86	1,758
11	1	3	787	111	40	0	0	0	13	48	46	203	1,250

12	176	6	433	1,646	232	220	0	599	83	144	166	0	3,705
Total	2,798	728	2,051	7,194	8,178	5,643	4,178	6,258	3,414	1,985	743	3,148	46,318

Difference (Post - Prior) Sector to Sector Matrix

Sectors	1	2	3	4	5	6	7	8	9	10	11	12	Total
1	1	-3	16	127	-24	4	4	5	63	32	6	29	259
2	15	0	0	14	22	0	-1	-1	19	2	0	1	71
3	28	-4	3	199	9	-10	-26	-9	-2	19	-9	13	211
4	70	-5	86	235	433	-30	-28	-8	100	69	15	47	984
5	14	-11	-22	59	0	13	23	-2	-57	-37	0	0	-20
6	6	-5	0	31	-4	0	-2	16	-33	-7	0	0	2
7	42	-8	-43	56	-8	14	0	0	-9	-29	0	0	14
8	1	-2	0	-58	-55	22	0	0	-13	-15	0	0	-118
9	24	-7	5	21	-118	10	8	-2	2	41	2	4	-10
10	-4	17	-26	76	-11	-7	-30	-18	2	0	-3	3	-2
11	0	-4	-68	28	-15	0	0	0	-4	-19	-7	1	-87
12	34	-1	29	248	-4	2	0	0	-3	28	8	0	340
Total	232	-34	-20	1,035	224	17	-52	-19	65	84	14	97	1,642

% Flow Differences

Sectors	1	2	3	4	5	6	7	8	9	10	11	12	Total
1	NA	NA	NA	40%	NA	NA	NA	NA	14%	NA	NA	NA	10%
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15%
3	NA	NA	NA	52%	NA	NA	NA	NA	NA	NA	NA	NA	10%
4	19%	NA	35%	23%	47%	NA	NA	NA	21%	26%	NA	NA	13%
5	NA	NA	NA	8%	NA	NA	NA	NA	-10%	NA	NA	NA	NA
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7	NA	NA	NA	7%	NA	NA	NA	NA	NA	NA	NA	NA	NA
8	NA	NA	NA	-19%	-3%	NA	NA	NA	NA	NA	NA	NA	-2%
9	NA	NA	NA	NA	-15%	NA	NA	NA	NA	NA	NA	NA	NA
10	NA	NA	NA	36%	NA	NA	NA	NA	NA	NA	NA	NA	NA
11	NA	NA	-8%	NA	NA	NA	NA	NA	NA	NA	NA	NA	-7%
12	NA	NA	NA	18%	NA	NA	NA	NA	NA	NA	NA	NA	10%
Total	9%	NA	NA	17%	3%	NA	-1%	NA	2%	4%	NA	3%	4%

5.5.7 Overall, the matrix estimation has resulted in a small number of changes to the prior matrices in order to satisfy the local movements within the model area, which have not been captured in the cordoned matrices obtained from LTAM, thereby, achieving good calibration and validation results which is presented in the subsequent sections. The trip patterns have been preserved between the pre- and post- matrix estimation as indicated by the trip length distribution changes.

5.6 Convergence Stability and Proximity

5.6.1 Table 5-8 shows the last four iterations of the SATURN model convergence for each time period. This shows that the recommended WebTAG convergence criteria (Table 2-5) are generally met for all peak periods in terms of both "stability" and "proximity".

Table 5-8 Highway Convergence Statistics

AM peak iteration	Delta (%)	% Gap	P < 1%
12	0.0006	0.00026	99.9
13	0.0003	0.00023	100
14	0.0003	0.00023	100
15	0.0004	0.00019	100.0
Inter-peak iteration	**Delta (%)**	**% Gap**	**P < 1%**
25	0.0005	0.00019	99.2
26	0.0001	0.00034	99.2
27	0.0001	0.00018	99.4
28	0.0001	0.00024	99.6
PM peak iteration	**Delta (%)**	**% Gap**	**P < 1%**
24	0.0066	0.00430	98.7
25	0.0039	0.00460	99.4
26	0.0027	0.00570	99.6
27	0.0029	0.00570	99.5

5.7 Trip Matrix Calibration

5.7.1 Comparisons at screenline level provide information on the quality of the trip matrices and WebTAG acceptability guidelines for screenline flows states that the differences between the modelled flows and counts should be less than 5% of the observed values for all or nearly all screenlines.

5.7.2 The flow comparisons for each of the calibration screenlines post matrix estimation is shown in Table 5-9. Further details are presented in Appendix C.

5.7.3 Out of the twelve screenlines (six in each direction), all in the IP, and all except one in the AM and PM peaks are within the acceptability guidelines of WebTAG. Screenline 3 Westbound in the AM and Screenline 6 NB in the PM are marginally outside the specified WebTAG threshold of 5%.

Table 5-9 Summary of Screenline Calibration

Screenline	Direction	Percent Flow Difference		
		AM	IP	PM
Screenline 1	EB	-0.4%	-1.4%	-2.0%
	WB	0.9%	-0.5%	0.7%
Screenline 2	EB	0.6%	0.0%	-0.1%
	WB	-0.5%	-0.3%	-4.2%

Screenline	Direction	Percent Flow Difference		
		AM	IP	PM
Screenline 3	EB	-3.2%	-3.8%	-3.1%
	WB	6.2%	4.1%	3.7%
Screenline 4	EB	0.3%	0.8%	-0.2%
	WB	3.4%	0.2%	-0.3%
Screenline 5	NB	-0.1%	0.1%	0.2%
	SB	0.2%	0.6%	0.3%
Screenline 6	NB	-0.2%	4.9%	5.0%
	SB	1.5%	0.0%	-0.3%

Figure 5.1 Calibration screenlines passing WebTAG criteria – AM Peak

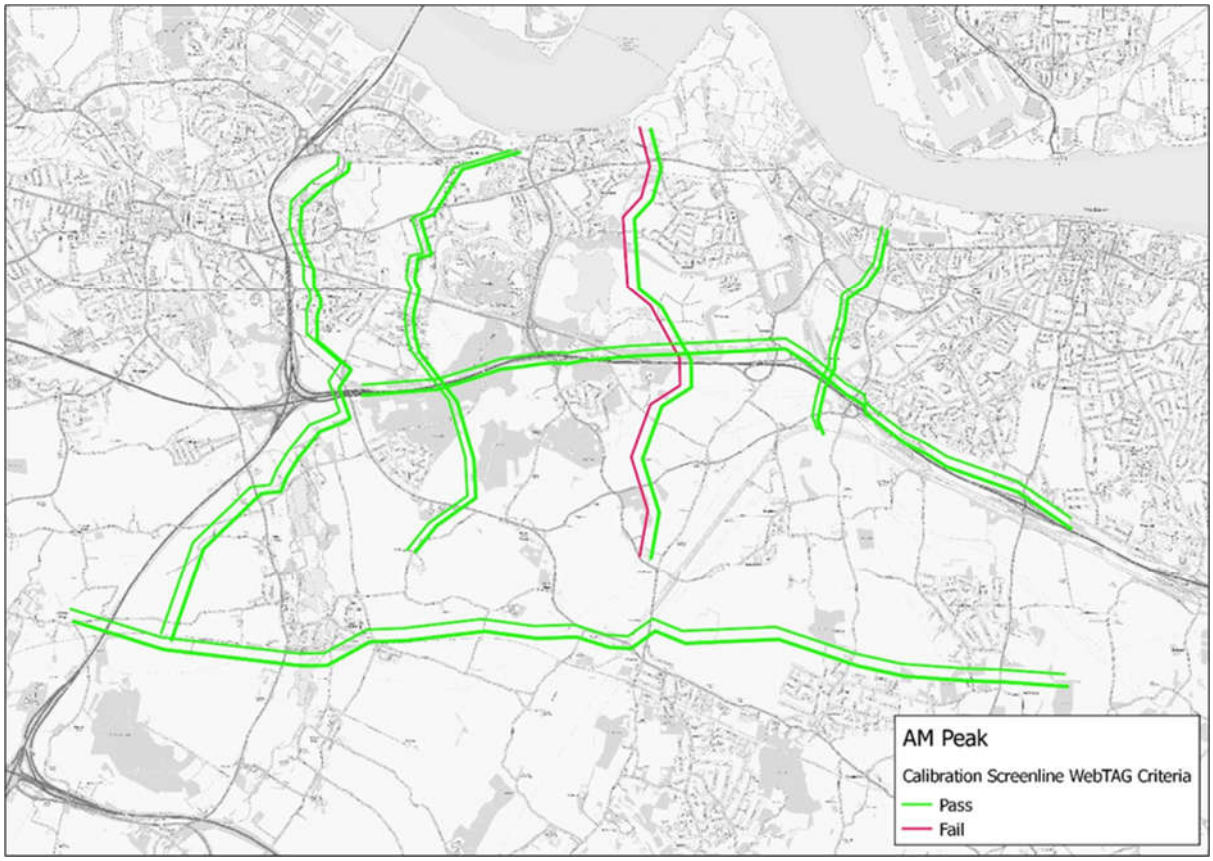


Figure 5.2 Calibration screenlines passing WebTAG criteria – Inter Peak

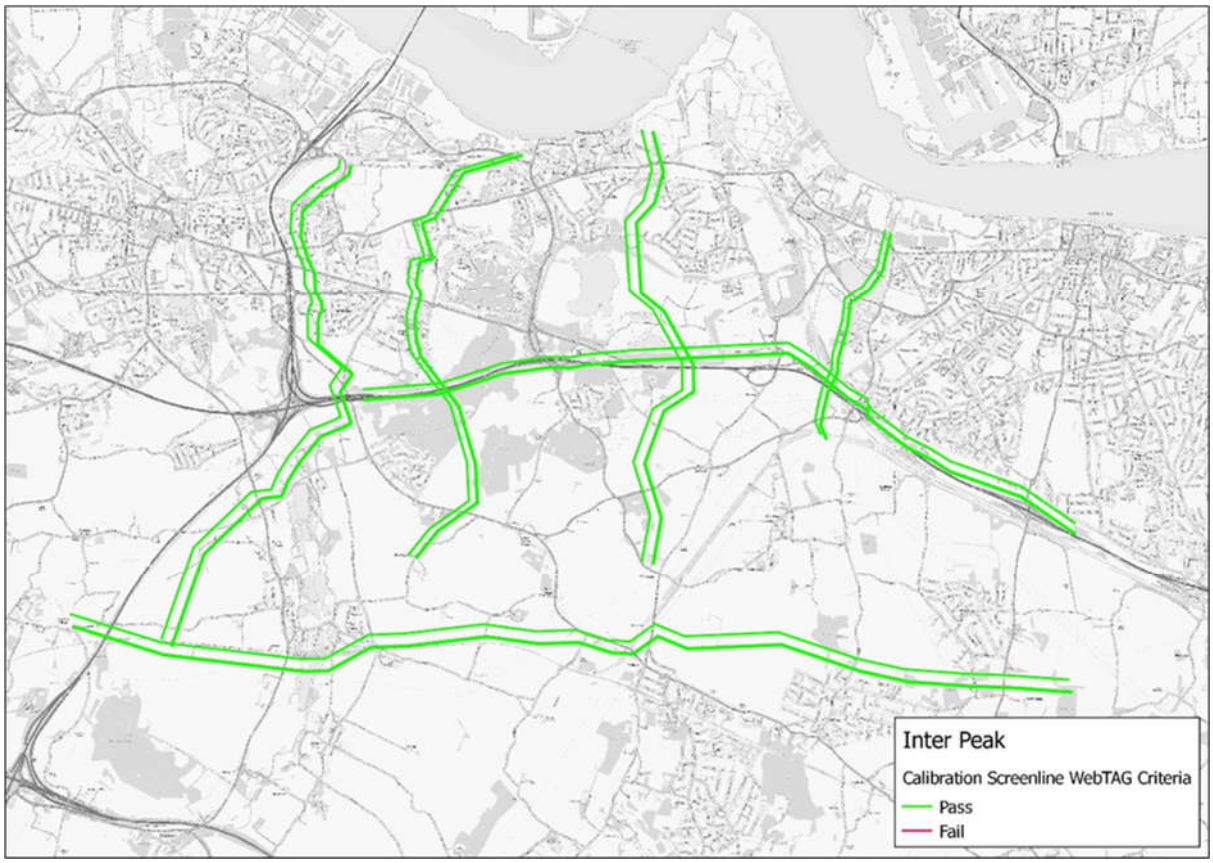
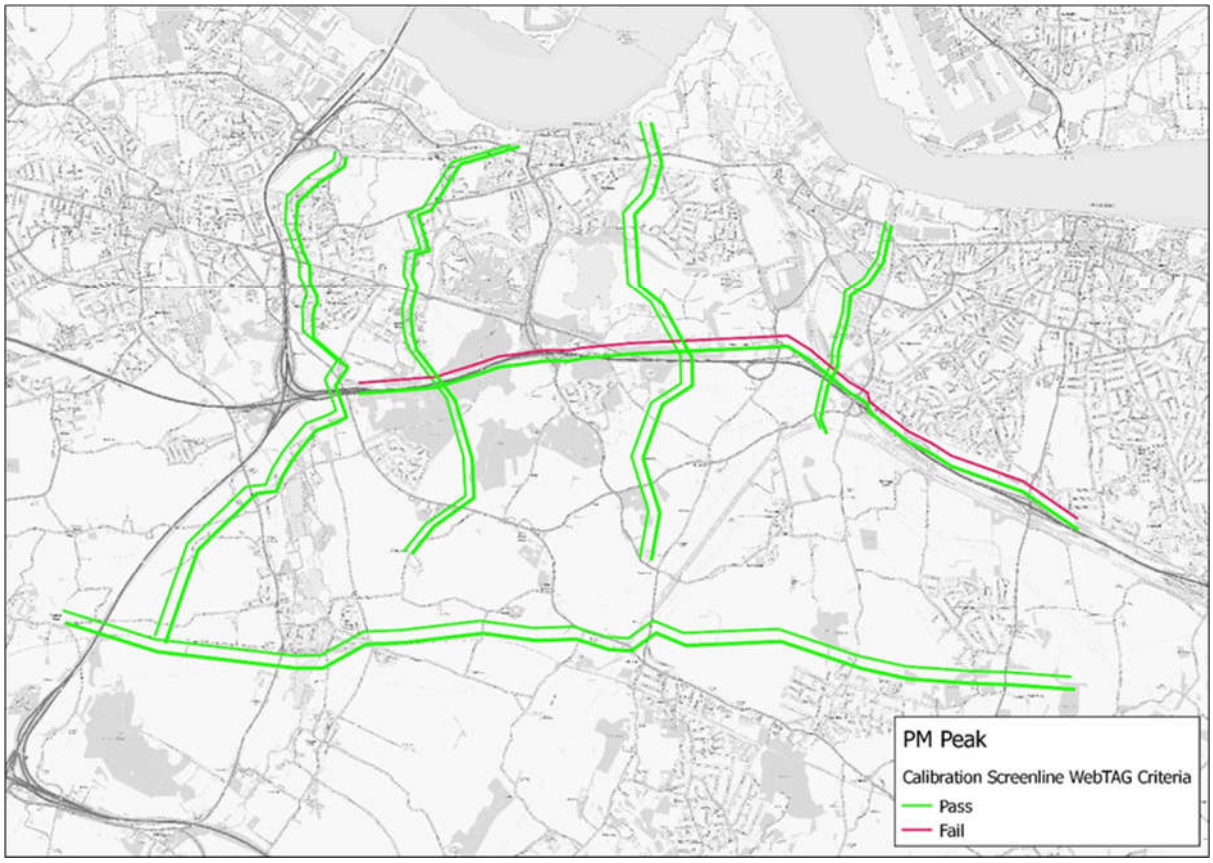


Figure 5.3 Calibration screenlines passing WebTAG criteria – PM Peak



5.8 Link Flow Calibration

5.8.1 A summary of all the individual calibration sites from the screenlines is presented in Table 5-10. As shown in the table, link flow WebTAG criteria is met for at least 85% of links. Detailed comparison of the modelled flows against observed counts is provided in Appendix C.

Table 5-10 Summary of Calibration Sites

Time Period	Total Counts	Calibration counts passing flow criteria (GEH or Flow)	
		Cars	Total Vehicles
AM Peak	74	73 (99%)	72 (97%)
Inter Peak	74	73 (99%)	73 (99%)
PM Peak	74	71 (96%)	71 (96%)

5.8.2 Calibration across the key junctions are presented in Table 5-11. With post matrix estimation, the model performance across the key junctions have improved significantly in comparison to the LTAM validated base cordon model (Table 4-2). The detailed comparison of the modelled flows against observed counts for these key junctions along with A2 sections around Bean and Ebbsfleet junctions is provided in appendix sections C.4 to C.6. Though Ebbsfleet West in AM, Bean North in IP and Hall Road / A2 On Off Slip junction in PM does not have all the turns meeting WebTAG flow criteria. However, the post ME assignment models have shown good journey time validation in the sections that pass through these junctions.

Table 5-11 Summary of Calibration across Key Junctions

Junction	No. of Counts	Calibration counts passing flow criteria (GEH or Flow)		
		AM	IP	PM
Bean North	7	100%	86%	100%
Bean South	6	100%	100%	100%
Ebbsfleet East	3	100%	100%	100%
Ebbsfleet West	12	92%	100%	100%
Hall Road/A2 On Off Slip Junction	5	100%	100%	80%
Hall Road/New Barn Road Roundabout	12	100%	100%	100%

6. Model Validation

6.1 Introduction

6.1.1 The validation of the A2BE Stage 3 model has been undertaken using the following aspects of the model:

- Network and route choice validation;
- Trip matrix validation; and
- Assignment validation (Links flows and journey time).

6.2 Network and Route Choice Validation

6.2.1 As outlined in Chapter 5, a number of checks have been undertaken as part of the network calibration process. The routing chosen by the model between key locations was reviewed. WebTAG Unit M3.1 suggests that the number of routes (OD pairs) should be estimated as:

- Number of OD pairs = (Number of zones)$^{0.25}$ × Number of user classes

6.2.2 This equates to approximately fourteen OD pairs in the study area and the routing was checked between fourteen selected OD pairs in the model by comparing modelled routing against the routing observed from internet based journey planners. The analysis is presented in Appendix B and did not highlight any noticeable discrepancies in the model network.

6.3 Trip Matrix Validation

6.3.1 The validation of the post matrix estimation matrices was undertaken by comparing the total screenline model traffic flows with observed traffic counts.

6.3.2 All the four screenlines (two in each direction) earmarked for validation are within the acceptability guidelines of WebTAG as shown in Table 6-1. Further details are presented in Appendix D.

Table 6-1 Summary of Screenline Validation

Screenline	Direction	Percent Difference		
		AM	IP	PM
Screenline 1	NB	0.7%	2.0%	2.3%
	SB	0.7%	3.9%	3.2%
Screenline 2	NB	3.7%	-0.9%	-1.4%
	SB	-2.7%	-2.4%	-3.4%

Figure 6.1 Validation screenlines passing WebTAG criteria – AM Peak

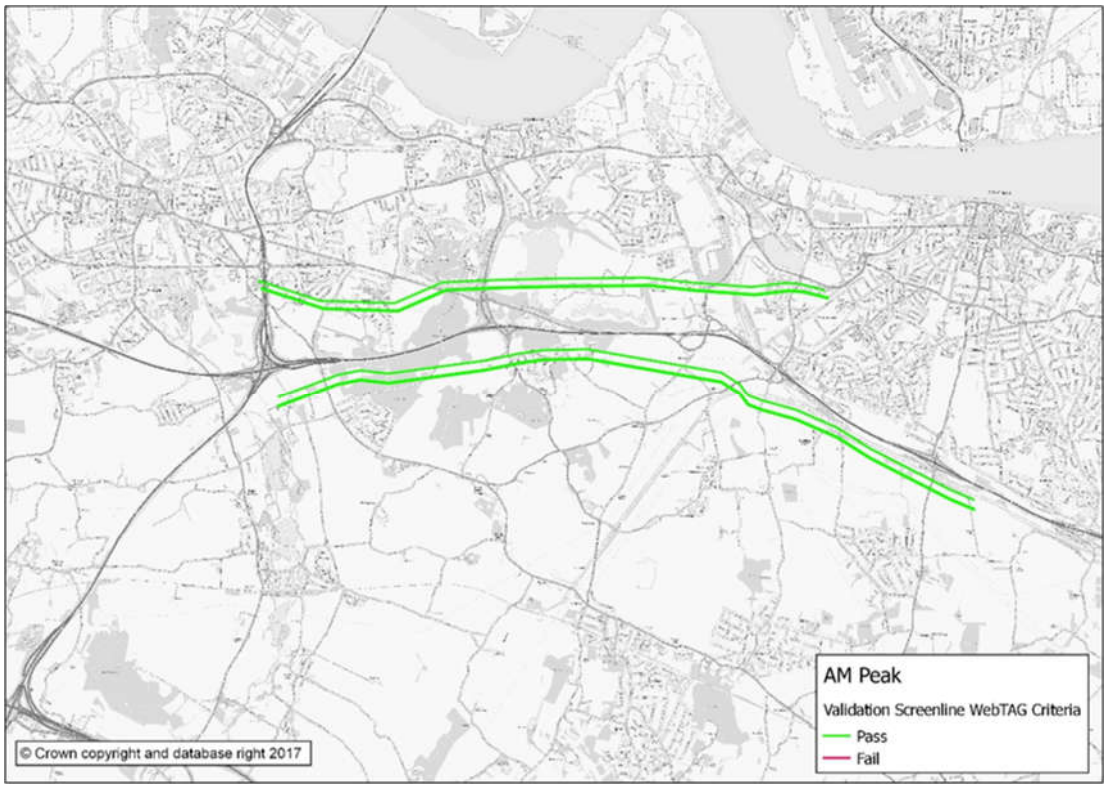


Figure 6.2 Validation screenlines passing WebTAG criteria – Inter Peak

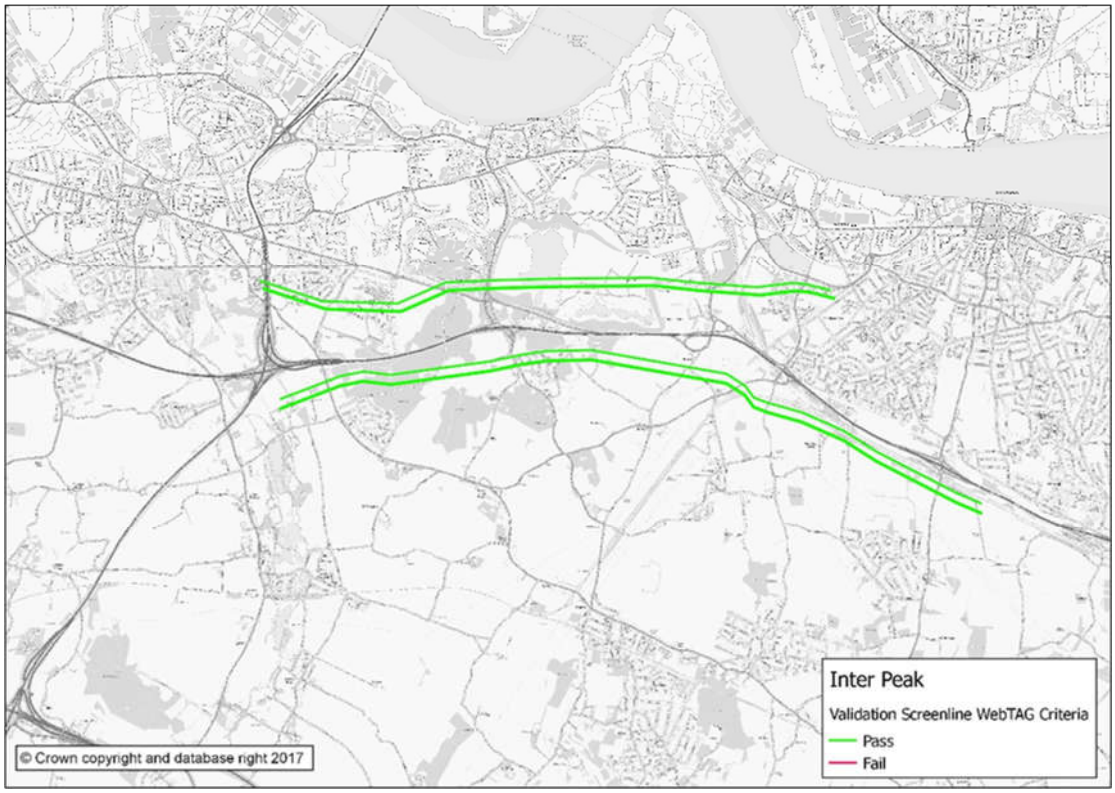
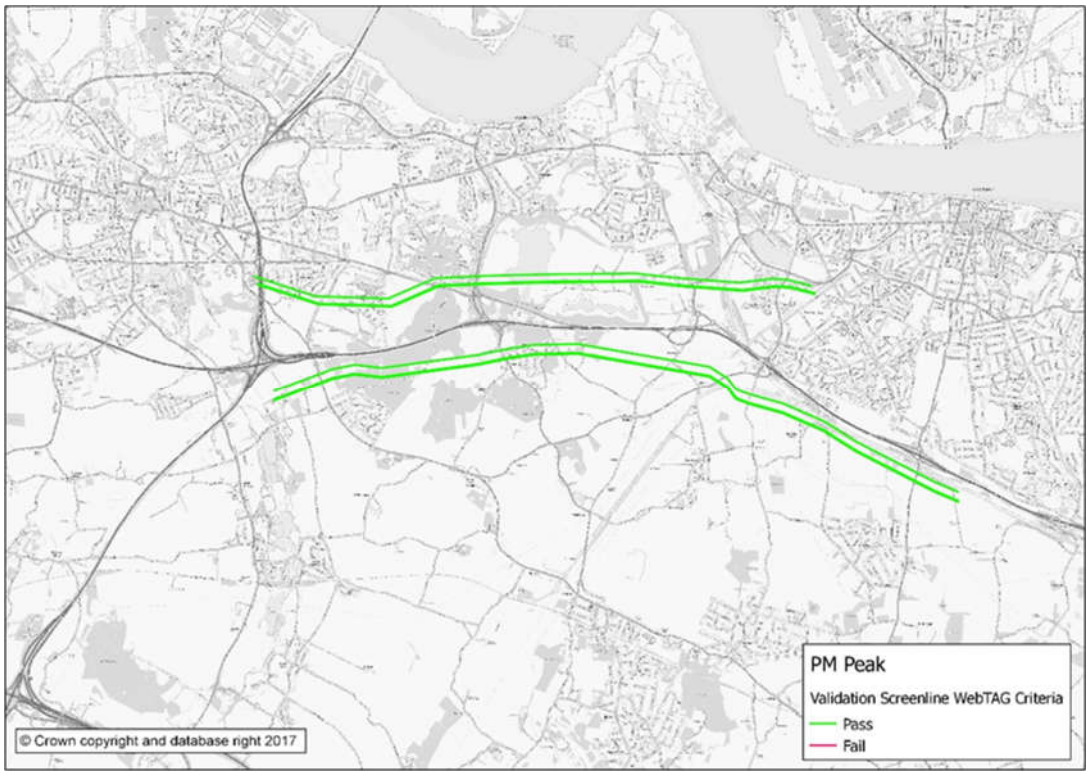


Figure 6.3 Validation screenlines passing WebTAG criteria – PM Peak



6.4 Assignment Validation

Link Flows

6.4.1 The modelled flows and observed counts were compared at the individual validation sites (27) from the screenlines earmarked for validation as well as for ad-hoc counts (61) in the model area.

6.4.2 A summary of all the individual validation sites from the screenlines is presented in Table 6-2. As shown in the table, the WebTAG criteria for link flows of at least 85% of links is met. The detailed comparison of the modelled flows against observed counts is provided in D.4.

Table 6-2 Summary of Individual Sites from Validation Screenlines

Time Period	Total Counts	Validation counts passing flow criteria (GEH or Flow)	
		Cars	Total Vehicles
AM Peak	27	25 (93%)	25 (93%)
Inter Peak	27	25 (93%)	26 (96%)
PM Peak	27	23 (85%)	24 (89%)

Table 6-3 Summary of Ad-hoc Validation Sites

Time Period	Total Counts	Validation counts passing flow criteria (GEH or Flow)	
		Cars	Total Vehicles
AM Peak	61	55 (90%)	53 (87%)
Inter Peak	61	57 (93%)	54 (89%)
PM Peak	61	52 (85%)	52 (85%)

Journey Time

6.4.3 Modelled journey times were compared against observed data (Table 3-1) for all time periods. A Summary of overall modelled and observed journey time comparisons for each route is provided in Table 6-4 to Table 6-6 for all time periods.

6.4.4 All the twelve journey time routes pass the WebTAG acceptability criteria for all the modelled time periods. Detailed section by section journey time plots are presented in Appendix E.

Table 6-4 Journey Time Validation for AM Peak

Journey Route	Journey Time (Minutes)		Difference	% Difference	Pass/Fail
	Observed	Modelled			
R01EB	09:43	09:28	-00:15	-3%	✓
R01WB	10:53	09:36	-01:17	-12%	✓
R02EB	06:47	07:21	00:34	8%	✓
R02WB	09:22	08:39	-00:43	-8%	✓
R03EB	04:20	04:14	-00:06	-2%	✓
R03WB	07:30	06:52	-00:38	-9%	✓
R04NB	05:38	05:00	-00:38	-11%	✓
R04SB	04:46	04:10	-00:36	-12%	✓
R05NB	06:53	06:04	-00:49	-12%	✓
R05SB	07:01	06:01	-01:00	-14%	✓
R06EB	11:06	10:40	-00:26	-4%	✓
R06WB	12:31	11:48	-00:43	-6%	✓

Table 6-5 Journey Time Validation for Inter Peak

Journey Route	Journey Time (Minutes)		Difference	% Difference	Pass/Fail
	Observed	Modelled			
R01EB	09:50	09:44	-00:06	-1%	✓
R01WB	10:45	09:23	-01:22	-13%	✓
R02EB	07:06	07:29	00:23	5%	✓
R02WB	07:27	07:01	-00:26	-6%	✓
R03EB	04:18	04:12	-00:06	-2%	✓
R03WB	04:32	04:17	-00:15	-5%	✓
R04NB	04:26	04:50	00:24	9%	✓
R04SB	04:14	03:59	-00:15	-6%	✓
R05NB	07:02	06:05	-00:57	-14%	✓
R05SB	06:53	06:04	-00:49	-12%	✓
R06EB	10:34	10:48	00:14	2%	✓
R06WB	11:29	11:05	-00:24	-3%	✓

Table 6-6 Journey Time Validation for PM Peak

Journey Route	Journey Time (Minutes)		Difference	% Difference	Pass/Fail
	Observed	Modelled			
R01EB	12:36	11:47	-00:49	-7%	✓
R01WB	12:48	11:46	-01:02	-8%	✓
R02EB	10:43	12:14	01:31	14%	✓
R02WB	07:46	07:33	-00:13	-3%	✓
R03EB	06:06	06:39	00:33	9%	✓
R03WB	04:16	04:21	00:05	2%	✓
R04NB	04:41	04:42	00:01	1%	✓
R04SB	04:19	04:12	-00:07	-3%	✓
R05NB	07:03	06:25	-00:38	-9%	✓
R05SB	07:10	06:20	-00:50	-12%	✓
R06EB	13:42	12:06	-01:36	-12%	✓
R06WB	12:11	11:49	-00:22	-3%	✓

6.5 Matrix Integrity Check

6.5.1 The LTAM calibrated base cordon matrices were compared with the post matrix estimation matrices. The matrix totals are presented in Table 6-7. Internal-Internal (II), Internal-External (IE) and External-Internal (EI) trips have increased in order to satisfy the local movements within the model area, which may not have been captured in the cordoned matrix obtained from LTAM.

6.5.2 Although, we see increases in II, IE and EI trips, the trip length distribution is preserved in post matrix estimation as shown in Table 6-8.

Table 6-7 Change in Matrix Totals

AM peak	LTAM (PCU)	Post (PCU)	Post vs LTAM
Internal-Internal (II)	1,779	2,344	32%
Internal-External (IE)	6,443	6,968	8%
External-Internal (IE)	5,826	6,935	19%
External-External (EE)	25,195	24,913	-1%
Total	39,243	41,160	5%
Inter-peak	**LTAM (PCU)**	**Post (PCU)**	**Post vs LTAM**
Internal-Internal (II)	1,890	2,616	38%
Internal-External (IE)	5,799	6,644	15%
External-Internal (IE)	6,542	7,477	14%
External-External (EE)	19,323	19,323	0%
Total	33,554	36,059	7%

PM Peak	LTAM (PCU)	Post (PCU)	Post vs LTAM
Internal-Internal (II)	2,537	3,497	38%
Internal-External (IE)	9,662	10,784	12%
External-Internal (IE)	8,156	9,275	14%
External-External (EE)	23,301	22,763	-2%
Total	43,657	46,318	6%

Table 6-8 Change in Mean and Standard Deviation for Trip Length Distribution (LTAM Validated Base cordon and Post Matrix Estimation)

Time Period	Cars		LGV		HGV	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
AM Peak	-2.3%	-3.1%	-2.1%	2.0%	-1.4%	-0.2%
Inter Peak	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%
PM Peak	-3.0%	-2.8%	-3.4%	-0.1%	-1.5%	-0.5%

6.5.3 The trip length distribution comparisons are shown graphically for Cars, LGVs and HGVs in Figure 6.4 to Figure 6.12. Looking at these figures, it is evident that the short length trips (<14km) have increased slightly in the post matrix estimation matrices in order to address the local movements. Also, the mean and standard deviation are within 3% as shown in Table 6-8, indicating that the LTAM base cordon matrix trip length distribution is preserved in the post matrix estimation and the overall integrity of the matrix has not been distorted.

Figure 6.4 Trip Length Distribution for Car – AM Peak

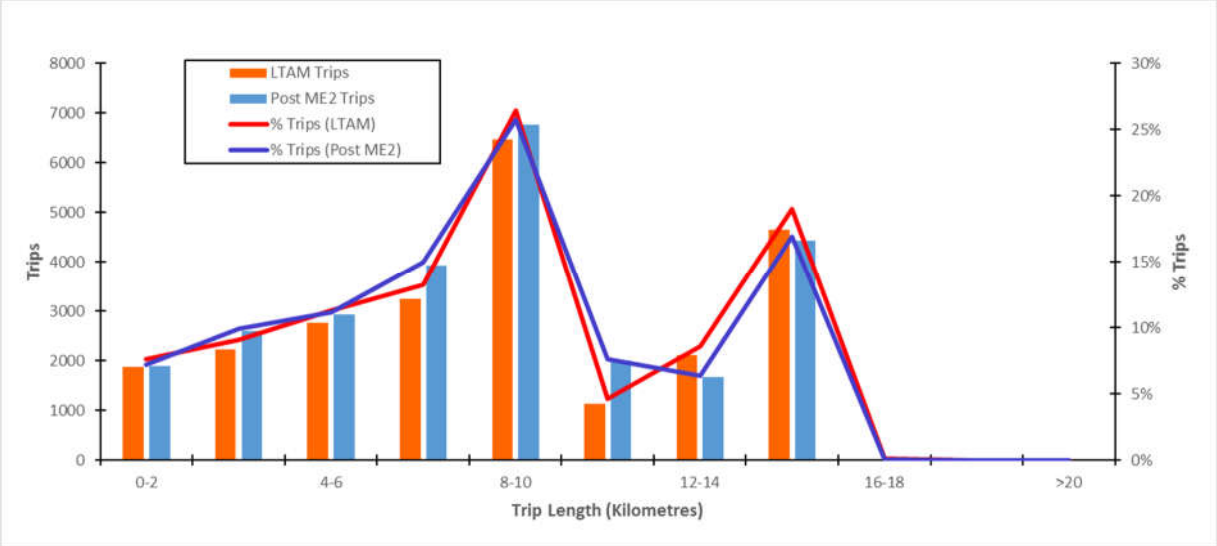


Figure 6.5 Trip Length Distribution for LGV – AM Peak

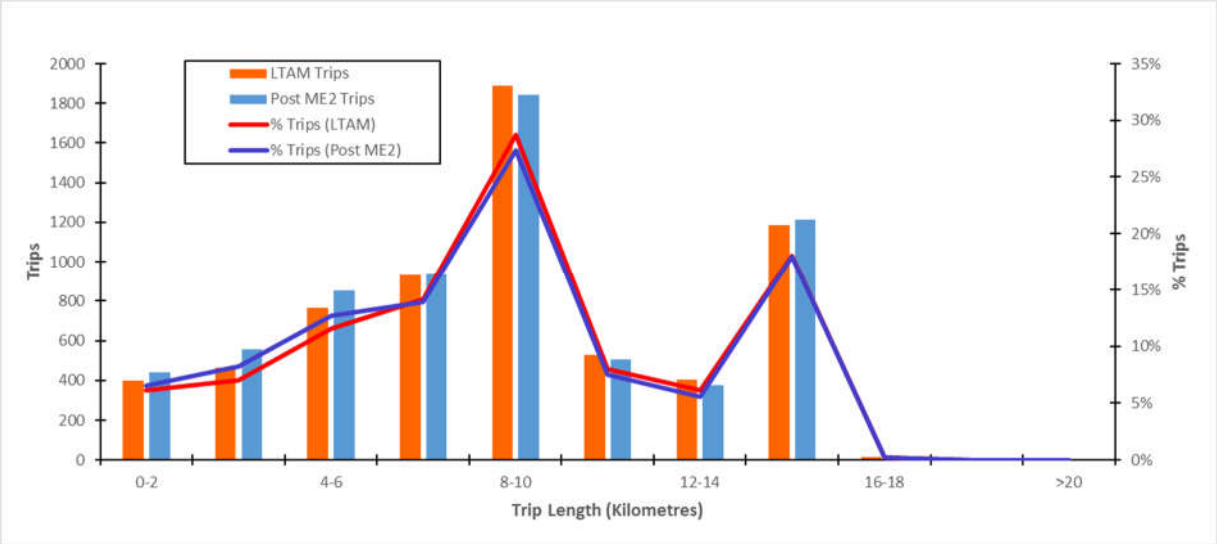


Figure 6.6 Trip Length Distribution for HGV – AM Peak

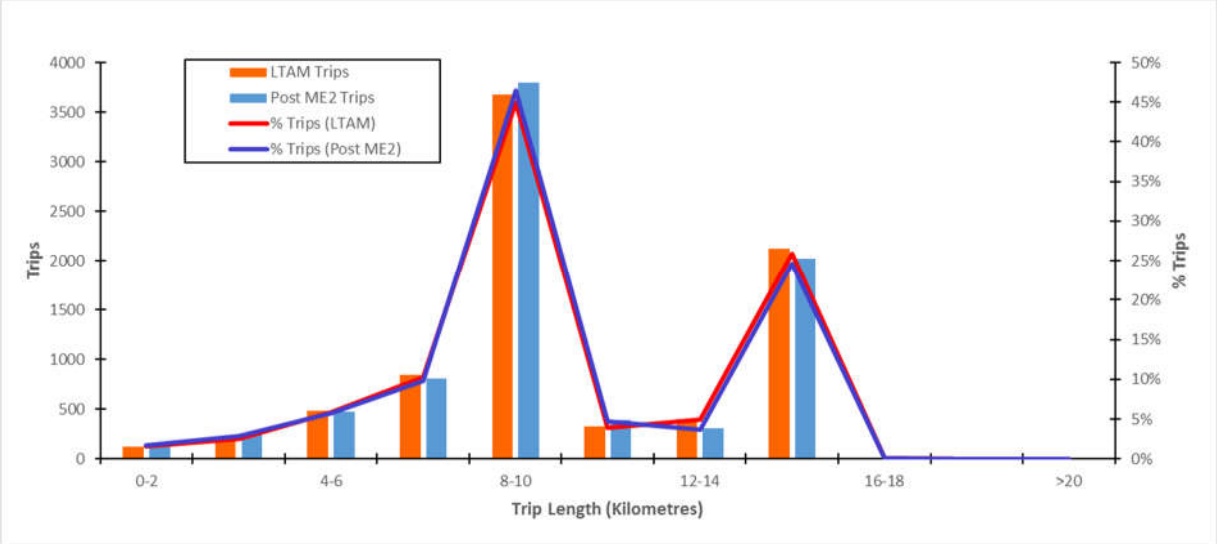


Figure 6.7 Trip Length Distribution for Car – Inter Peak

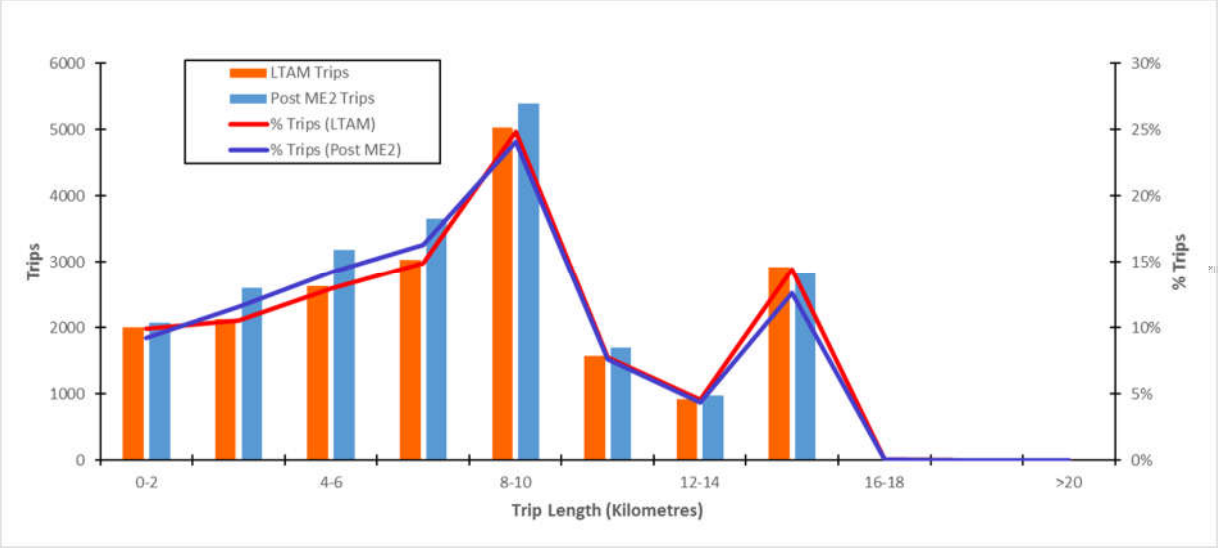


Figure 6.8 Trip Length Distribution for LGV – Inter Peak

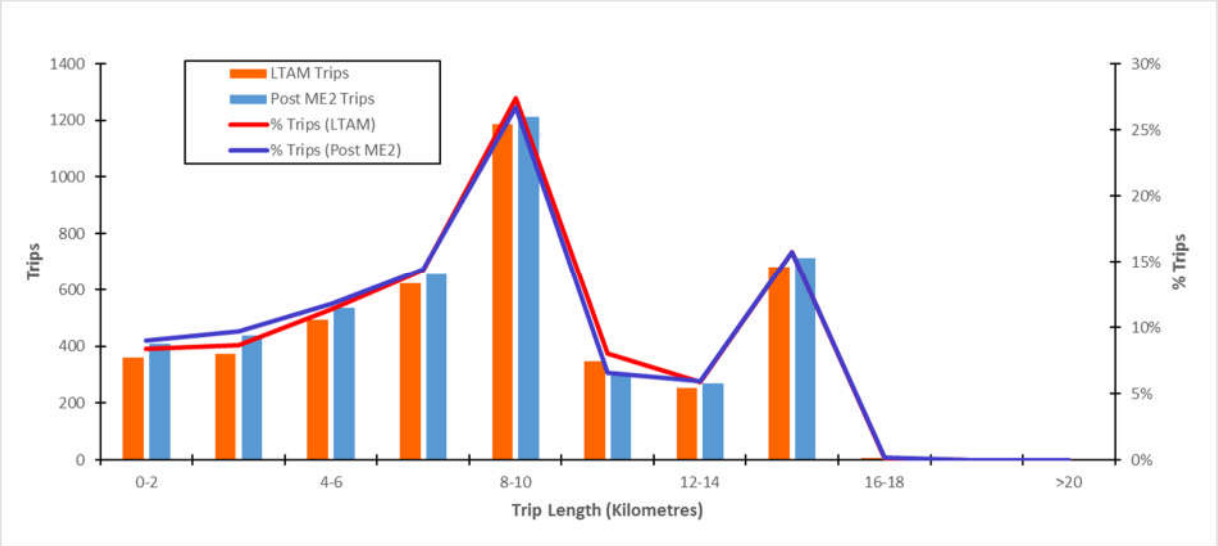


Figure 6.9 Trip Length Distribution for HGV – Inter Peak

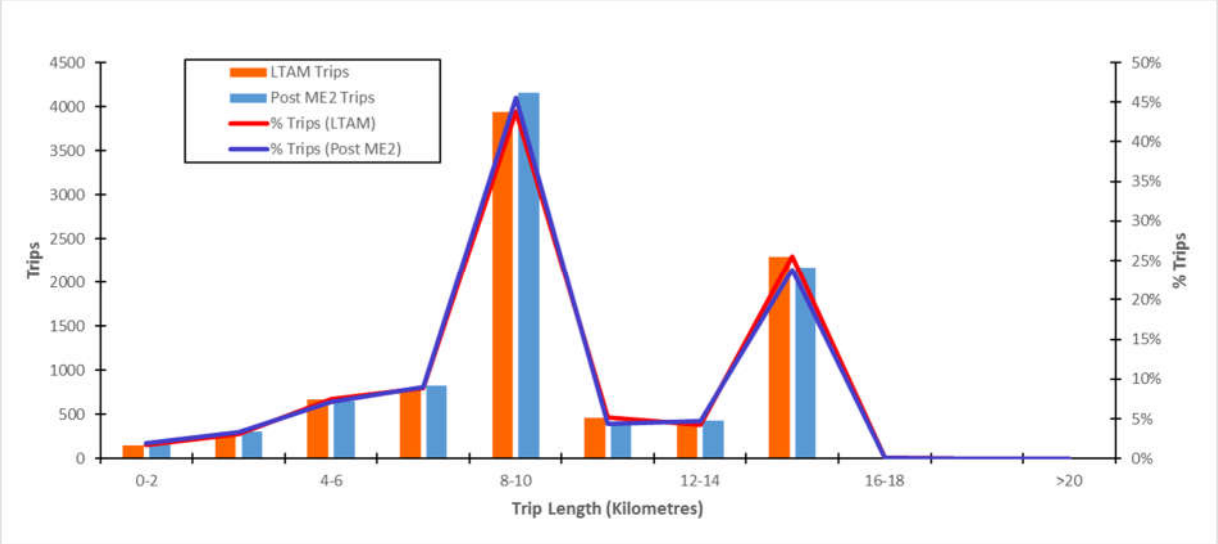


Figure 6.10 Trip Length Distribution for Car – PM Peak

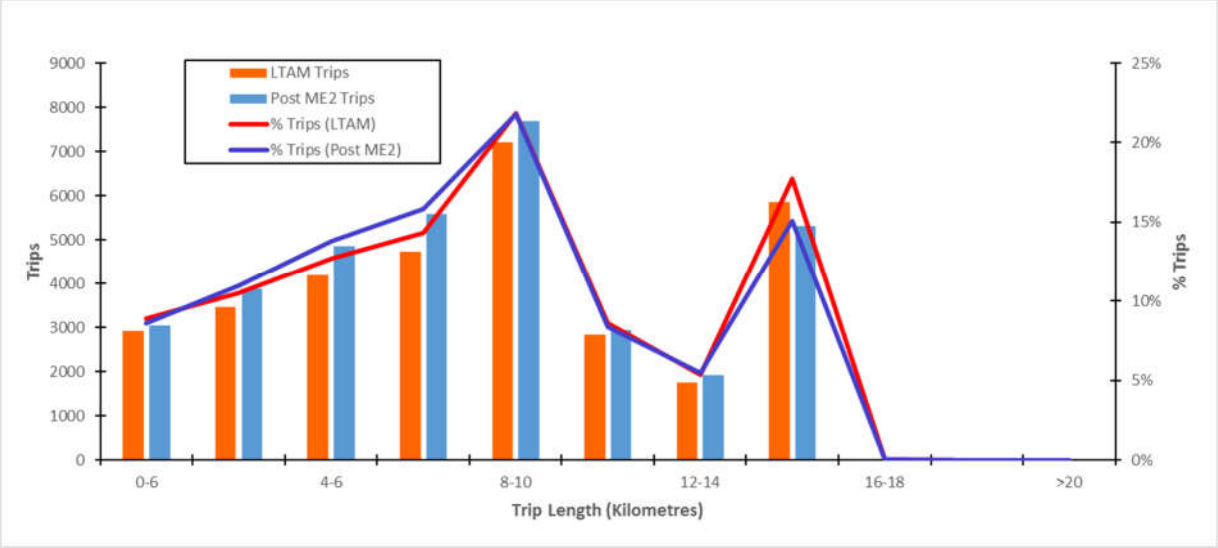


Figure 6.11 Trip Length Distribution for LGV – PM Peak

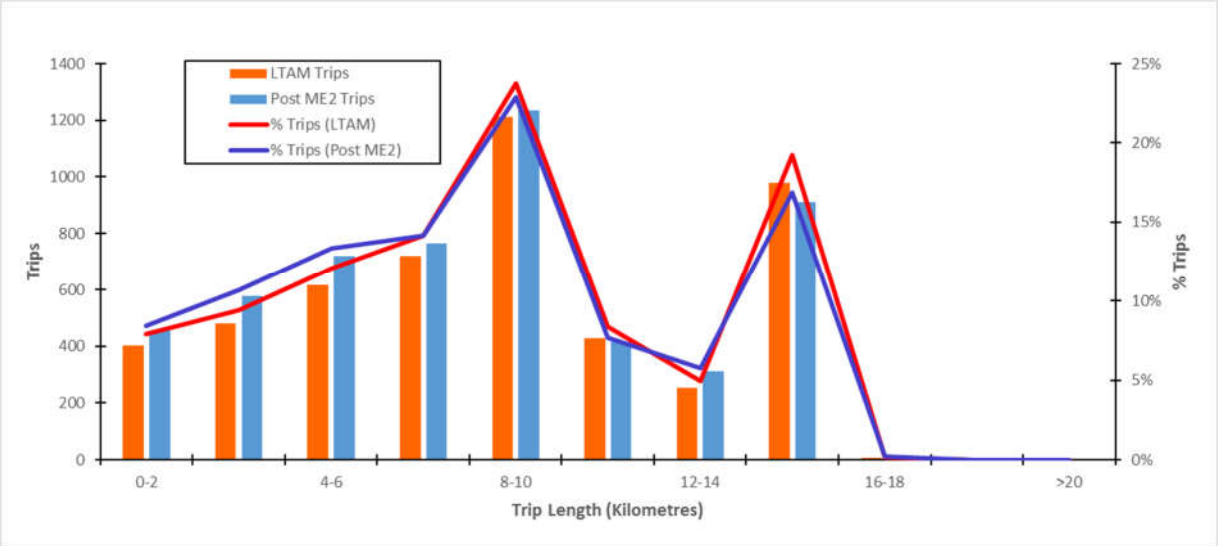
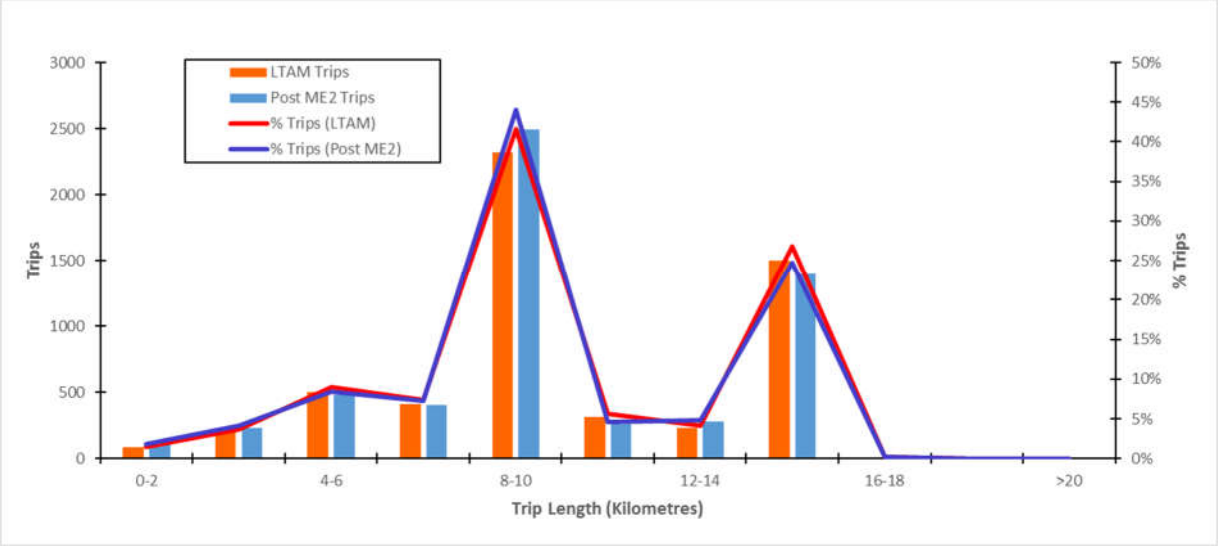


Figure 6.12 Trip Length Distribution for HGV – PM Peak



6.6 Base Model Conclusion

6.6.1 The results presented in the sections discussing model development, calibration and validation show that the model meets the WebTAG criteria and is suitable for the purpose of developing traffic forecasts used to inform economic, environmental and operational appraisal of highway infrastructure schemes around Bean and Ebbsfleet junctions.

7. Operational Model Validation

7.1 Introduction

7.1.1 The operational models (VISSIM) that were received from Arcadis at the end of the Stage 2 have been reviewed and updated.

7.1.2 The key update includes updating the base year from 2014 to 2016. The growth factors have been derived using the Highways England's TRADS database.

7.1.3 The base (2016) VISSIM model has been developed in accordance with the Highways England's Use of the Microsimulation Guidelines, July 2007.

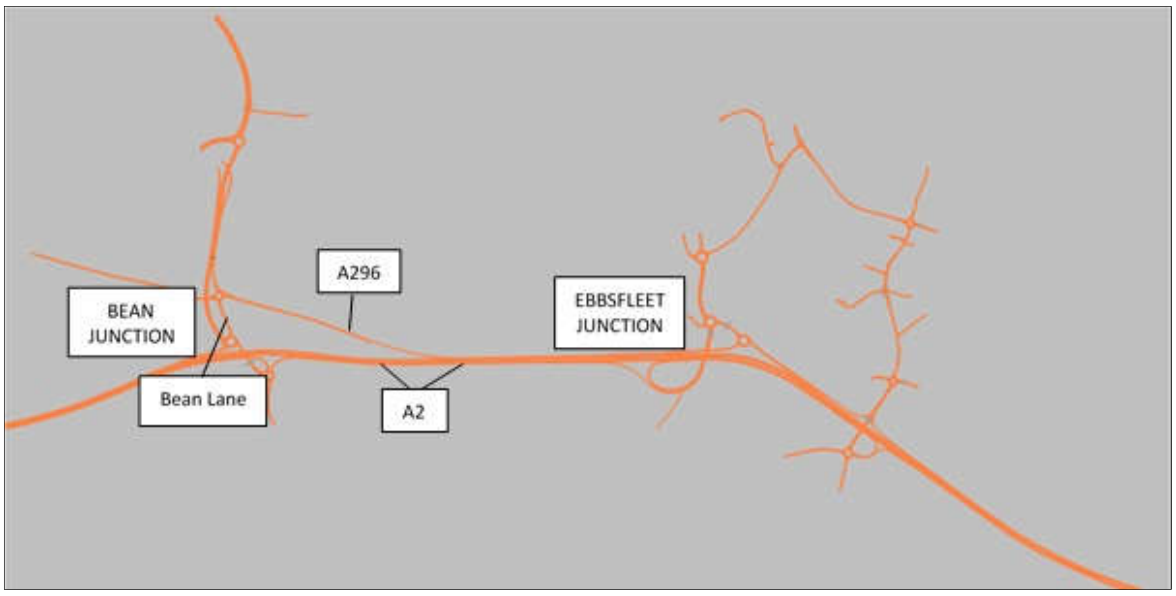
7.1.4 The purpose of developing this operational model is to evaluate any capacity issues and inform design with any specific lane discipline requirements.

7.2 Model Overview

7.2.1 Figure 7.1 shows the extent of the VISSIM Model. The key network extent includes A2 Bean Junction to the West and A2 Ebbsfleet Junction and B262 Hall Road interchange to the East.

7.2.2 The model has been developed for two time-periods: the AM peak (0630 – 0830) and the PM peak (1630 - 1830). The two-time periods consist of a half hour warm-up period, followed by a single hour simulation and half-hour cool down period. The AM peak hour and PM peak hour are in line with the strategic model peak hours.

Figure 7.1 VISSIM Model Extent



7.2.3 The observed flows have been assigned using static routes (fix) as there is limited route choice in the network.

7.3 Model Calibration

7.3.1 The purpose of model calibration is to ensure that the VISSIM model behaviour and assignments are accurately represented compared with the existing conditions. The emphasis of the calibration is to ensure that in the modelled peak periods:

- traffic patterns in the area are modelled accurately;
- represent level of delays and congestion similar to the existing conditions; and
- driving behaviour is reasonably close to the observed conditions.

7.3.2 The GEH statistic was adopted as the main indicator of 'goodness of fit', i.e. the extent to which modelled flows match corresponding observed values. The GEH statistic is a form of the chi-squared statistic described in DMRB Chapter 4 - Traffic Appraisal in Urban Areas. It is defined as:

$$GEH = \sqrt{\frac{(M-C)^2}{(M+C)/2}}$$

where M = modelled flow;

C = observed flow (or count).

7.3.3 The standard method used to compare modelled values against observations on a link therefore involves the calculation of the GEH statistic. As a general rule, when comparing assigned volumes with observed volumes, a GEH parameter of 5 or less indicates an acceptable level of calibration as presented in Table 2-2.

7.3.4 The base VISSIM modelled flow is compared against the observed flows. The table below shows the percent of movements meeting GEH or flow criteria. 95% and 94% of the movements in the network are passing the required criteria for GEH value less than 5 in AM and PM peaks respectively. Table 7-1 presents the flow calibration summary of all the junctions in the network.

7.3.5 Appendix E.1 present all the modelled flows and observed flows.

Table 7-1 Traffic Flow GEH Summary

No.	Junction Name	Total Movements	Movements meeting GEH or Flow criteria (%)	
			AM Peak	PM peak
1	B255/Bluewater Parkway Roundabout	9	100%	100%
2	B255 SB off slip/Watling Street/Bean Lane Roundabout	11	100%	91%
3	Bean Lane/A2 EB off slip/B255 Roundabout	11	100%	91%
4	A2 WB Slip/Bean Lane Roundabout	7	100%	100%
5	A2 EB slip/A2260 Roundabout	4	100%	100%
6	A2260/Substation Access Road Roundabout	15	87%	93%
7	International Way/Ebbsfleet Gateway/Southfleet Road Roundabout	15	80%	93%
8	International Way/Ebbsfleet Gateway	6	100%	83%
9	Thames Way/Ebbsfleet Gateway	6	100%	100%
10	Springhead Road/Thames Way Roundabout	16	94%	100%
11	Springhead Road/ Local Access Road/Enterprise Park	12	100%	100%
12	Springhead Road/Enterprise Park	6	100%	100%
13	Springhead Road/Haldane Garden/Springhead Parkway	11	100%	100%
14	Springhead Road/Waterdales	6	100%	100%

No.	Junction Name	Total Movements	Movements meeting GEH or Flow criteria (%)	
			AM Peak	PM peak
15	Springhead Road/Hall Road/Sainsbury's Access	16	88%	81%
16	Hall Road/A2 East Slip	5	80%	80%
17	Hall Road/New Barn Road/Station Road Roundabout	14	93%	93%
18	Overall Network	170	95%	94%

7.4 Model Validation

7.4.1 It is important that modelled journey times are validated well against observed values to make sure that speeds on links and delays at the junctions are accurately represented by the model. The criteria set out in DfT's TAG Unit 3.1 require that modelled journey times should be within ±15% of the observed times (or ±1 minute, if higher than 15%) on 85% of travel time routes.

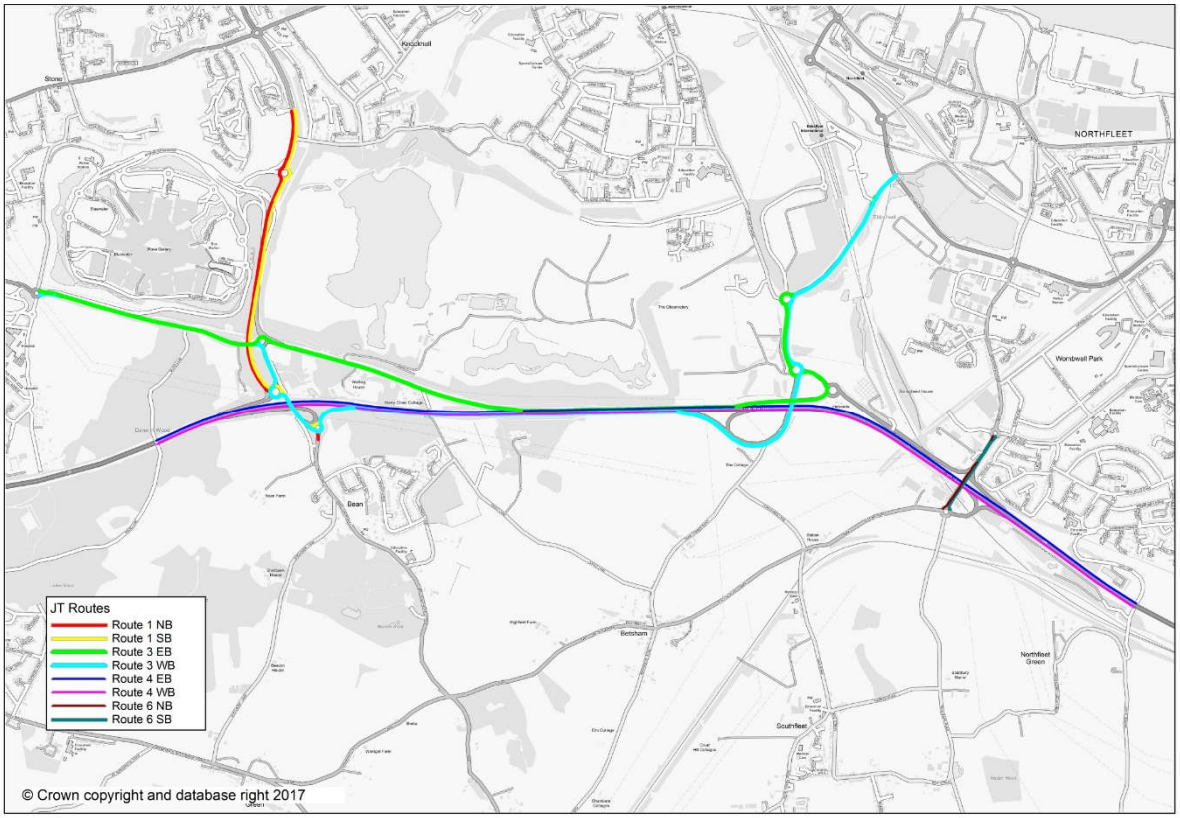
7.4.2 In addition, TAG Unit 3.1 recommends obtaining the journey times by vehicle type. However, it states that if journey times by vehicle type are not available but separate speed/flow relationships for light and heavy vehicles have been used, a weighted average of the modelled light and heavy vehicle speeds should be compared with the surveyed all-vehicle speed. This approach has been used for the journey time validation of the routes.

7.4.3 Observed journey times were obtained from the TrafficMaster database. The journey time data from TrafficMaster was processed for the AM and the PM peak hours. TrafficMaster sections relevant to this study are summarised below:

- Route 1 - B255 Bean Lane & A2 Bean Roundabout West to B255/Mounts Road Junction
- Route 3 - Watling Street/St James Lane Roundabout to A2260/Thames Way Junction
- Route 4 - A2 at Bean Junction to A2 at Pepper Hill Junction
- Route 6 - New Barn Road/Station Rd roundabout to Hall Road/Springhead Rd roundabout

7.4.4 A graphical map showing these individual journey time segments is presented in Figure 7.2

Figure 7.2 Journey Time Route Sections in VISSIM Model



7.4.5 Table 7-2 summarises the modelled and observed journey times in AM and PM peak.

Table 7-2 Journey Time Validation

Route	Length (m)	AM Peak			PM Peak		
		Observed JT (s)	Modelled JT (s)	% Difference	Observed JT (s)	Modelled JT (s)	% Difference
Route 1 NB	1,743	105	115	10%	108	123	14%
Route 1 SB	1,737	110	117	6%	118	122	4%
Route 3 EB	5,690	416	355	-15%	172	157	-9%
Route 3 WB	4,845	347	357	3%	309	308	0%
Route 4 EB	4,294	155	160	4%	182	171	-6%
Route 4 WB	4,304	294	307	4%	152	158	4%
Route 6 NB	518	54	57	5%	65	62	-5%
Route 6 SB	508	66	56	-15%	60	60	1%

All the modelled journey time sections are within ±15% of the observed journey time as set out in the DfT's TAG Unit 3.1 for the journey time acceptability criteria in AM and PM peaks. Therefore, the model is deemed suitable for the proposed options' appraisal and evaluation. This is summarised in

7.4.6 Table 7-3.

Table 7-3 Journey Time Validation - Summary

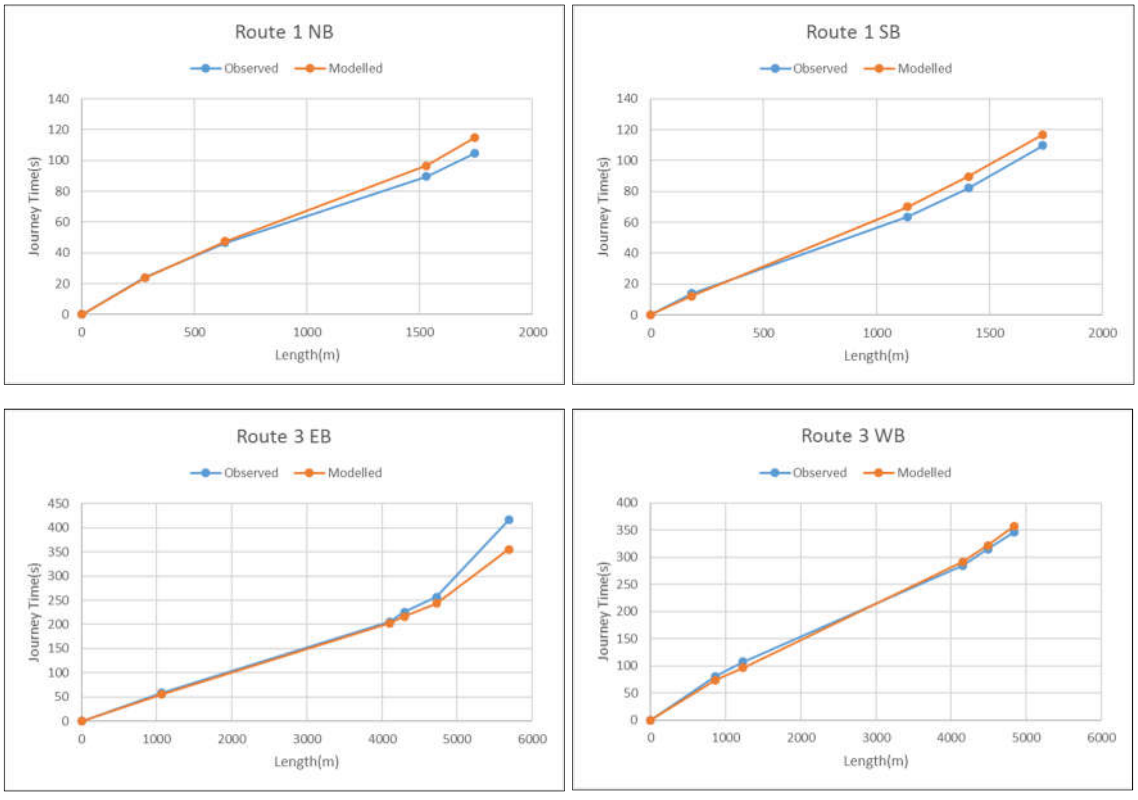
Journey Time Validation Criteria		Sections				
		Route 1	Route 3	Route 4	Route 6	Average
Percentage of Journey Times within 15% or within 60 seconds	AM Peak	100%	100%	100%	100%	100%
	PM Peak	100%	100%	100%	100%	100%

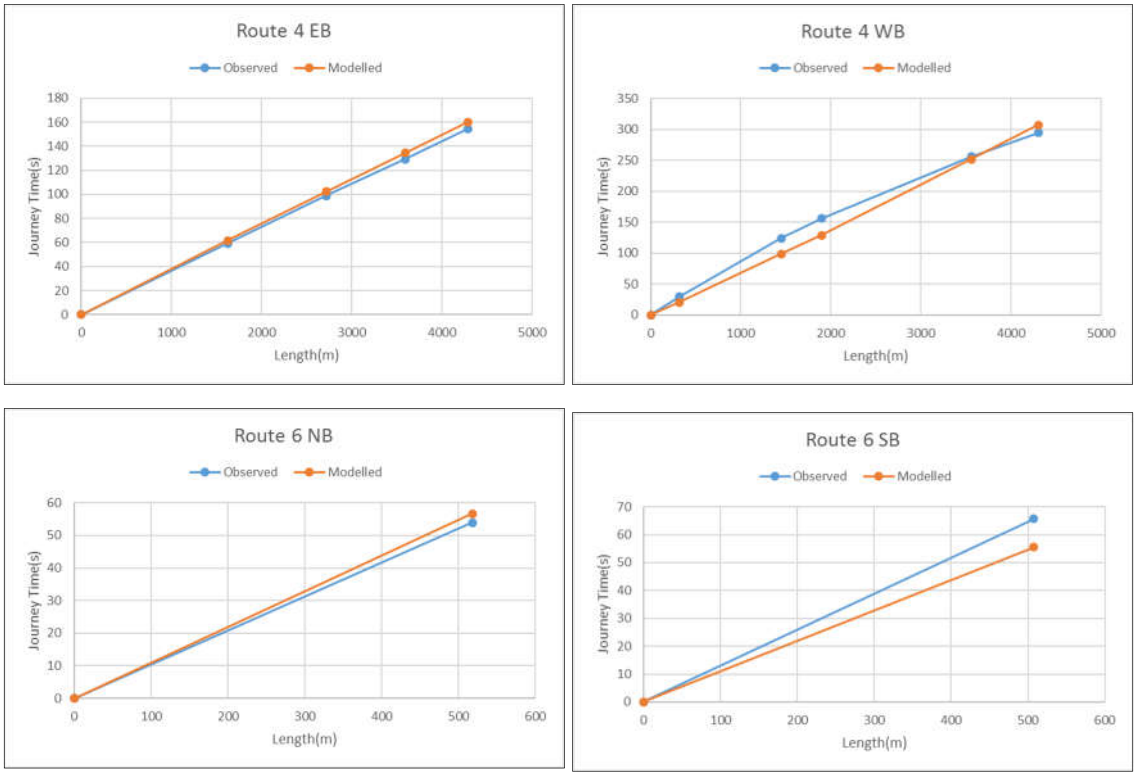
7.4.7 The observed journey times for the Route 3 eastbound (from the A296 Watling Street to A2260 Thames Way junction) direction in the PM peak showed very high standard deviation. Further investigation into the TrafficMaster raw data revealed the discrepancies in the data and hence a part of the route on the A296 has been excluded from the VISSIM journey time validation. This reduces the overall length of the Route 3 from 5.7 km to 1.5 km in the PM peak.

7.4.8 Journey time data was further analysed for individual sections and compared against the modelled journey times. Appendix G presents the individual modelled and observed journey times together with individual journey time sections' map for each of the route. Only for the Route 4, one section from the A2 westbound after the Pepper Hill is predicting 20% travel time in the AM peak hour. All other individual sections' model travel times are within ±15% of the observed travel time.

7.4.9 Figure 7.3 below presents the cumulative journey times against the observed journey time sections for the AM peak hour.

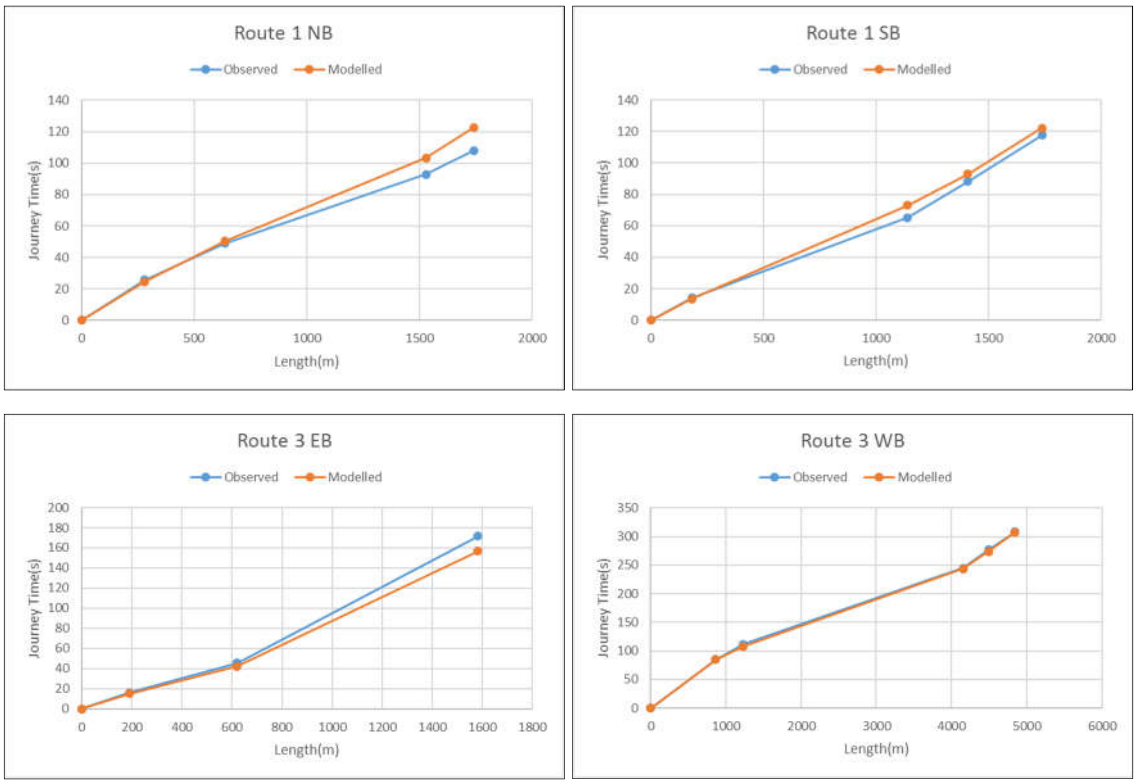
Figure 7.3 Cumulative Journey Time Comparisons – AM Peak Hour

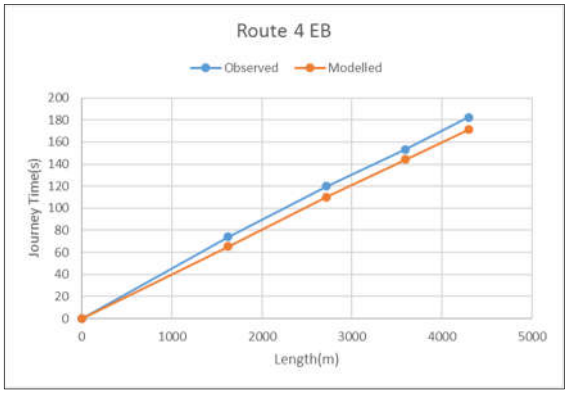


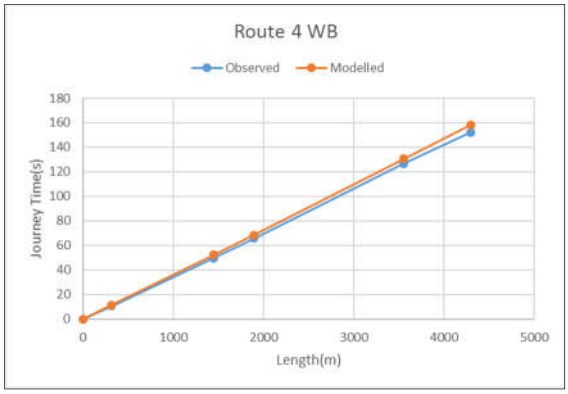


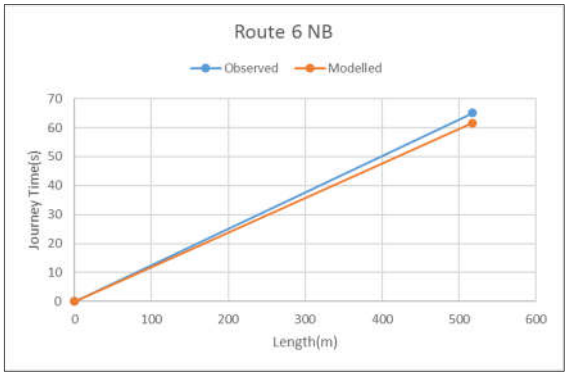
7.4.10 Figure 7.4 below presents the cumulative journey times against cumulative observed journey time sections for the PM peak hour.

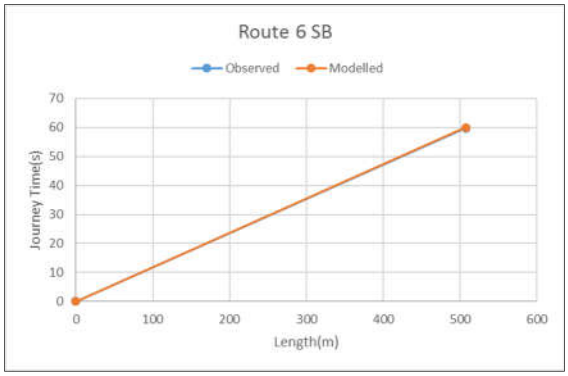
Figure 7.4 Cumulative Journey Time Comparisons – PM Peak Hour











7.5 Operational Model Conclusion

7.5.1 Overall, the flows and journey time validation have produced a base model that reflects existing traffic conditions to a reasonably high degree of accuracy.

7.5.2 Furthermore, the modelled journey times were validated within the acceptable criteria of ±15% of the observed journey times. The majority of junctions are achieving flow acceptability criteria of GEH below 5, with a few exceptions of junction approaches, however, an overall junctions' flow is within the WebTAG's acceptability criteria.

Appendices

Appendix A. Impact of Matrix Estimation

A.1 Scatter Plots for Cars (Prior vs Post ME – AM Peak)

Figure A. 1 Zonal Cell Value Comparison for cars (AM Peak)

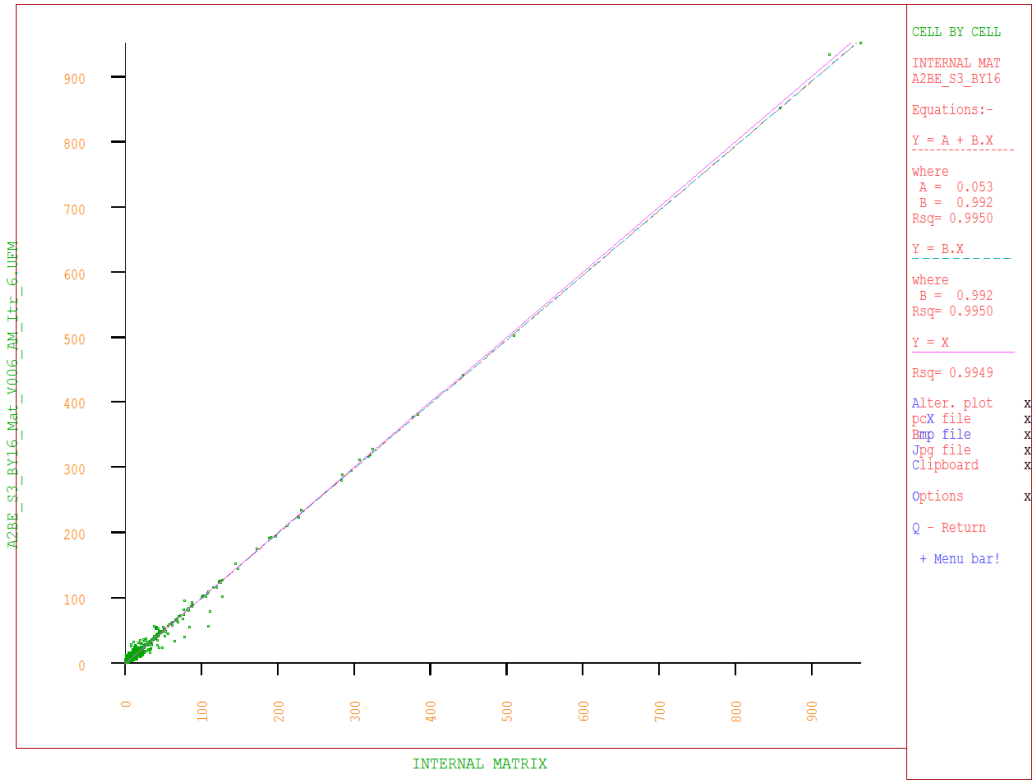


Figure A. 2 Zonal Column Trip End Comparison for Cars (AM Peak)

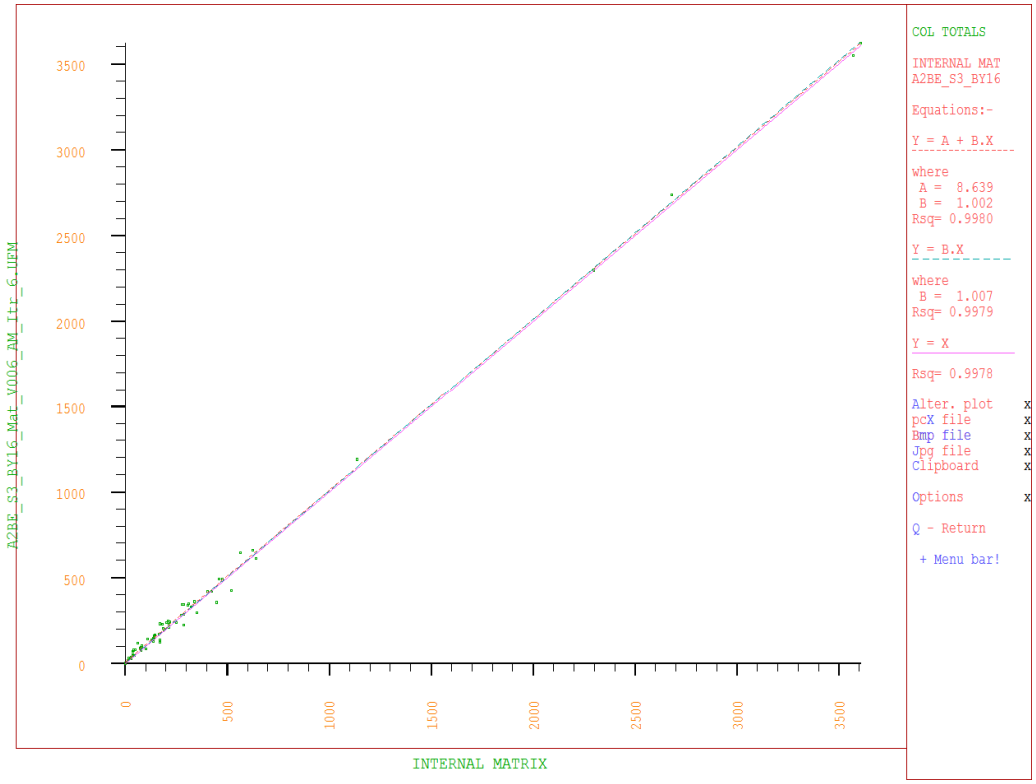
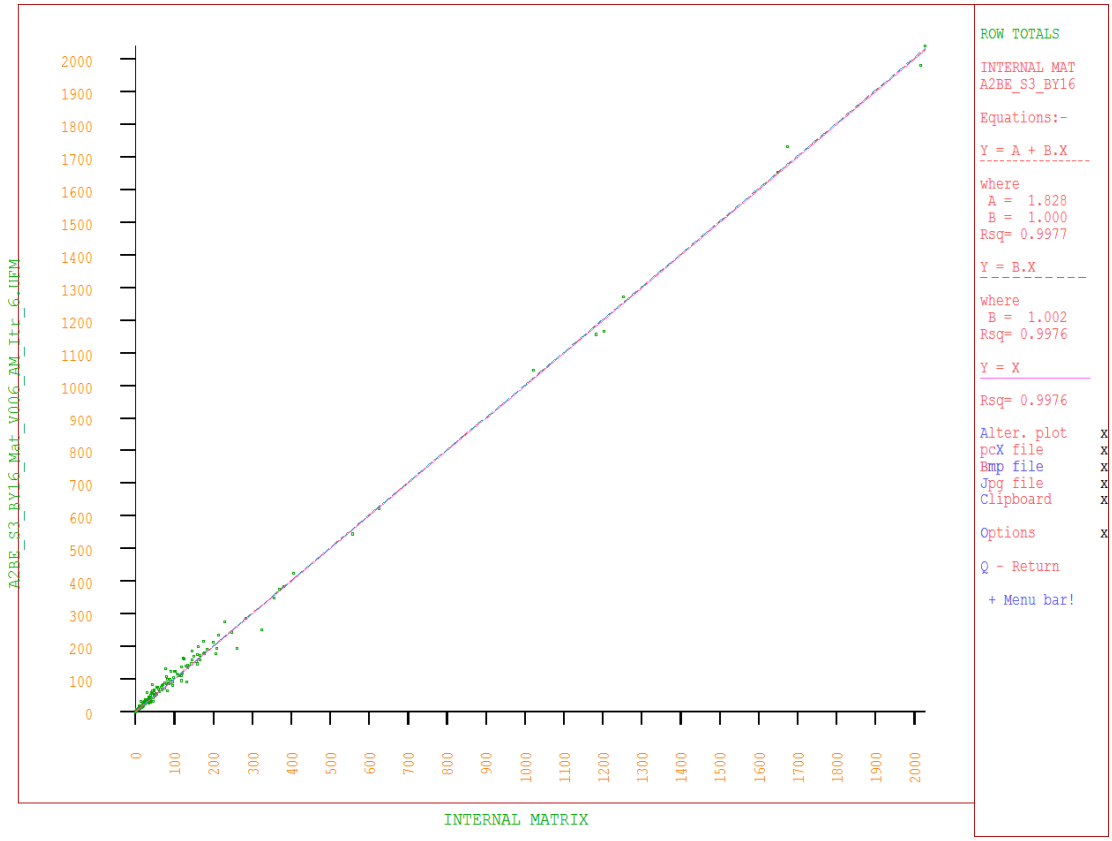


Figure A. 3 Zonal Row Trip End Comparison for Cars (AM Peak)



A.2 Scatter Plots for all vehicles (Prior vs Post ME – AM Peak)

Figure A. 4 Zonal Cell Value Comparison for all vehicles (AM Peak)

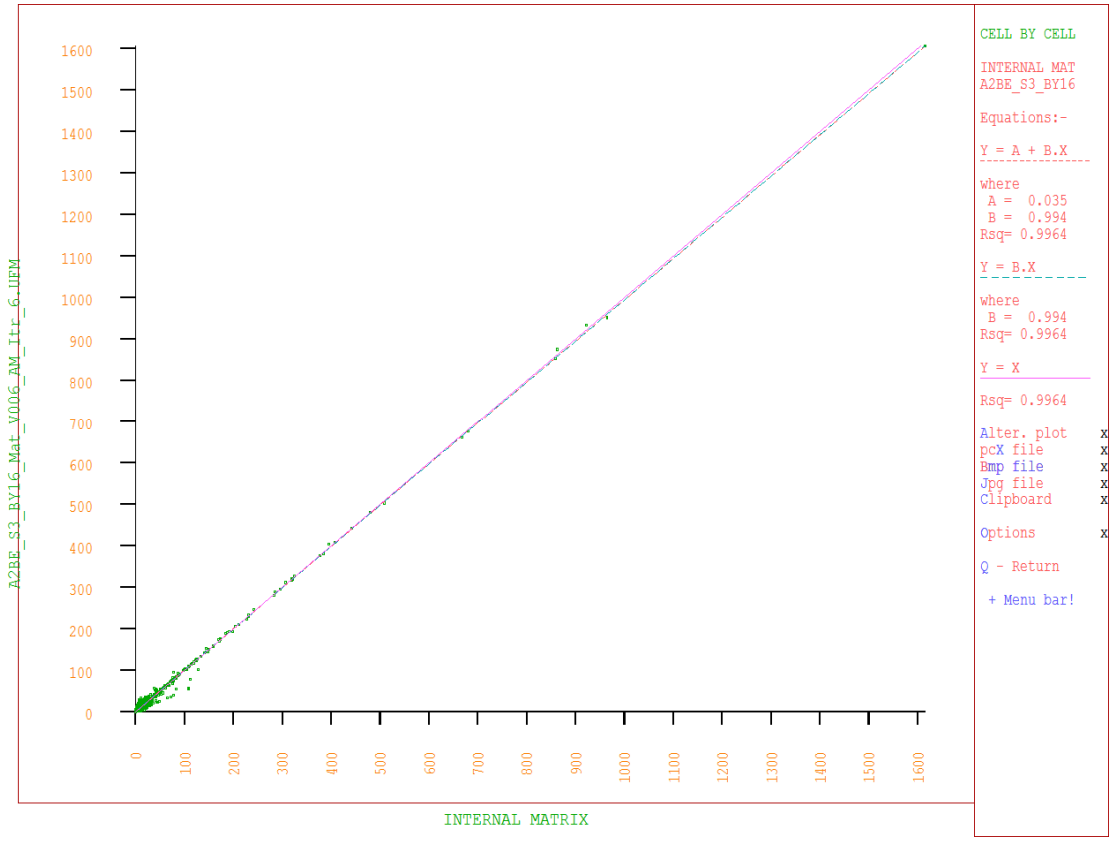


Figure A. 5 Zonal Column Trip End Comparison for all vehicles (AM Peak)

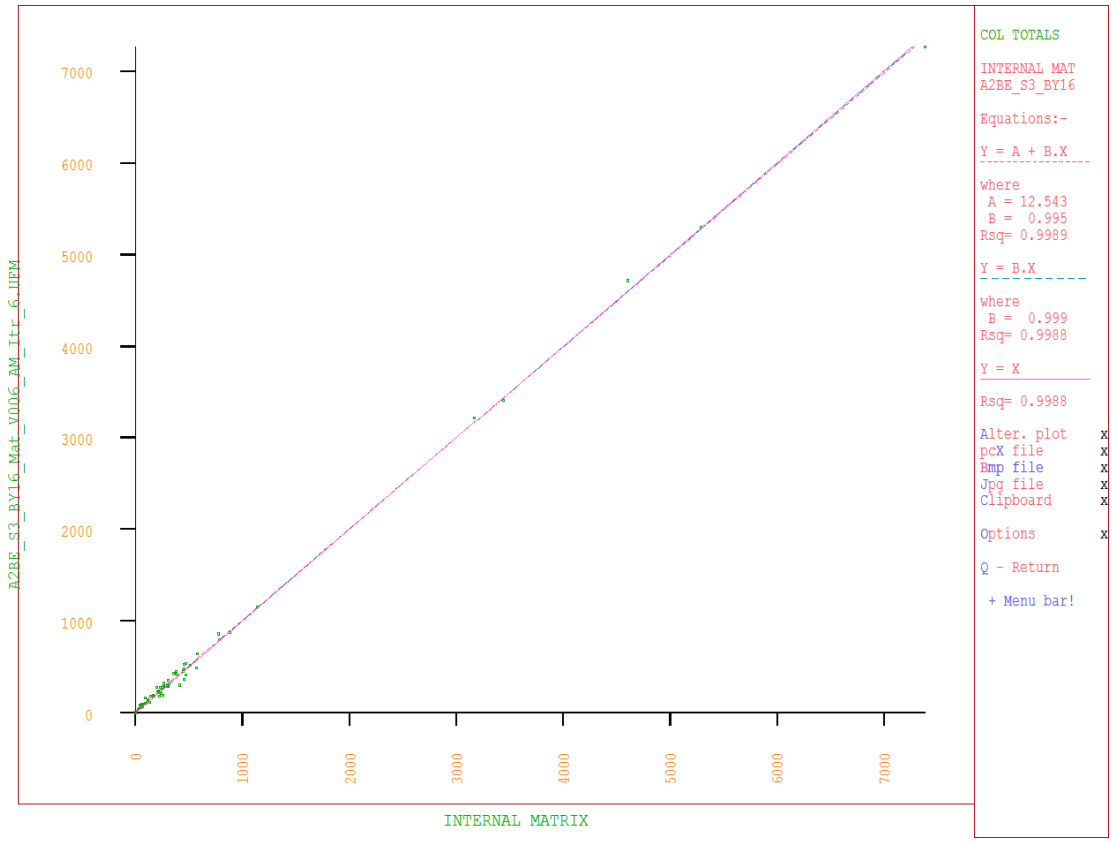
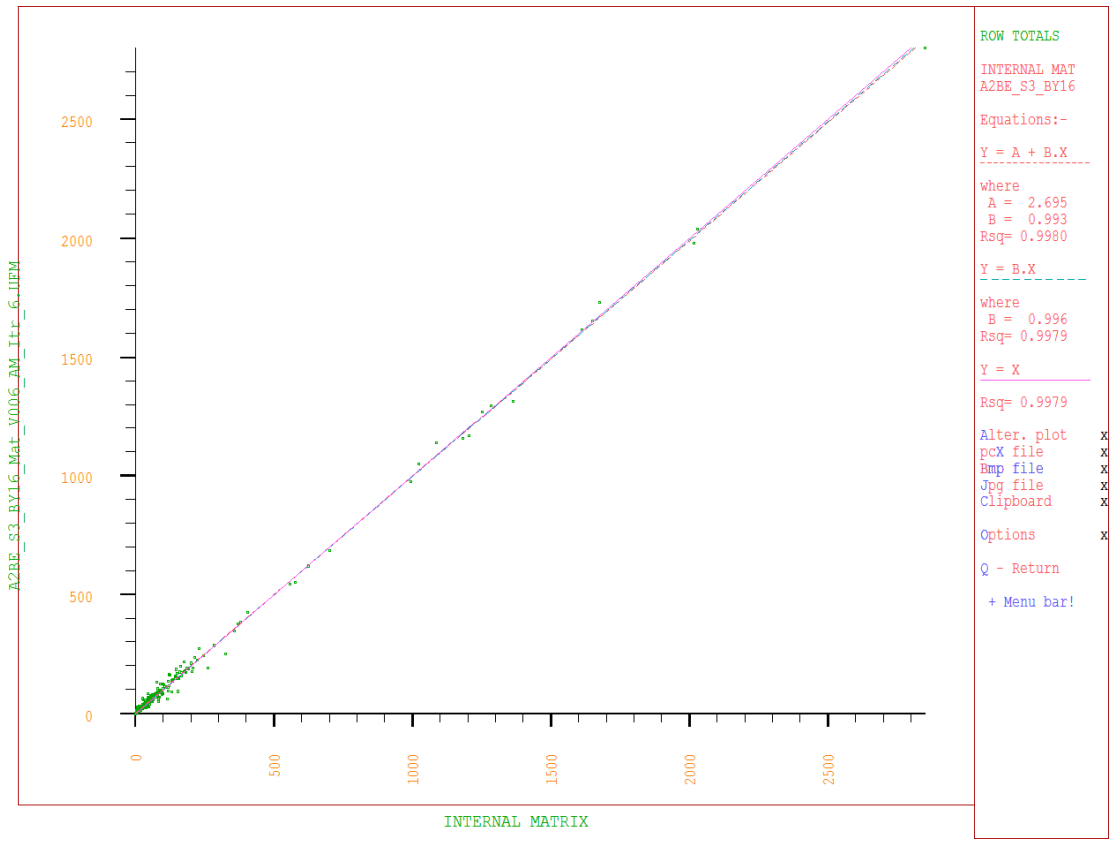


Figure A. 6 Zonal Row Trip End Comparison for all vehicles (AM Peak)



A.3 Scatter Plots for Cars (Prior vs Post ME – Inter Peak)

Figure A. 7 Zonal Cell Value Comparison for Cars (Inter Peak)

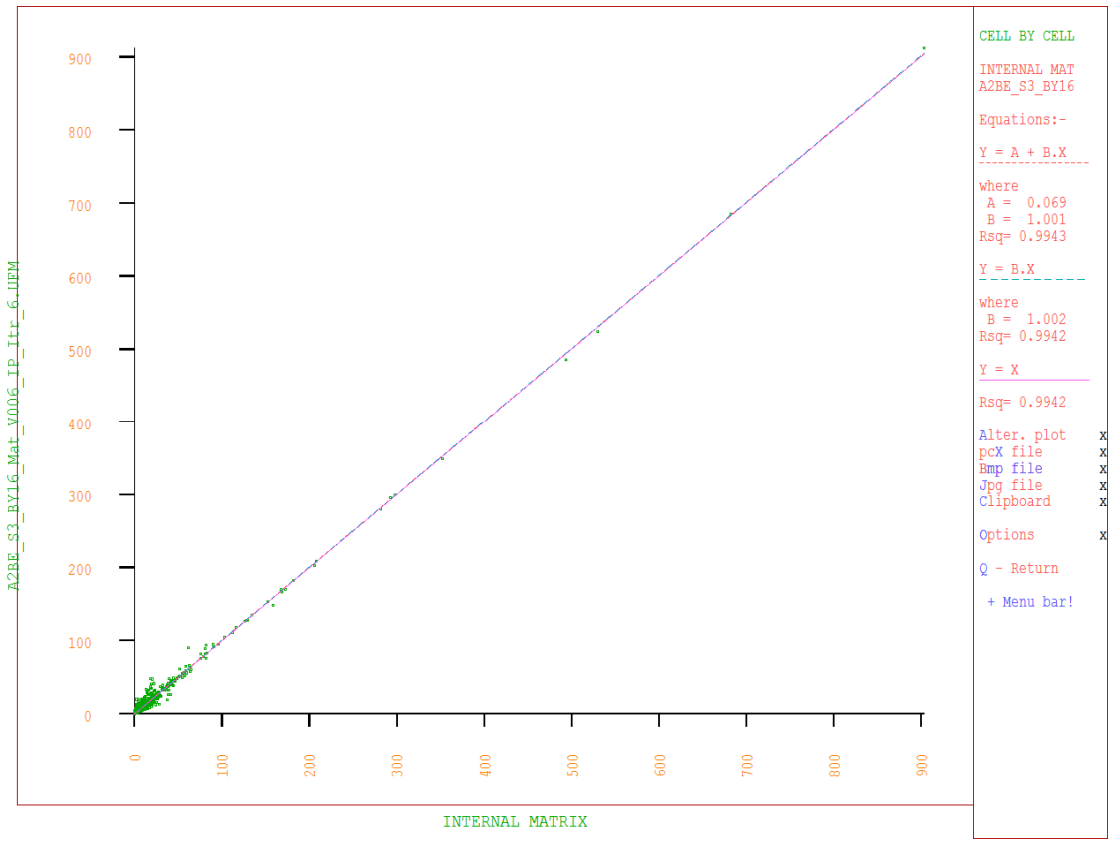


Figure A. 8 Zonal Column Trip End Comparison for Cars (Inter Peak)

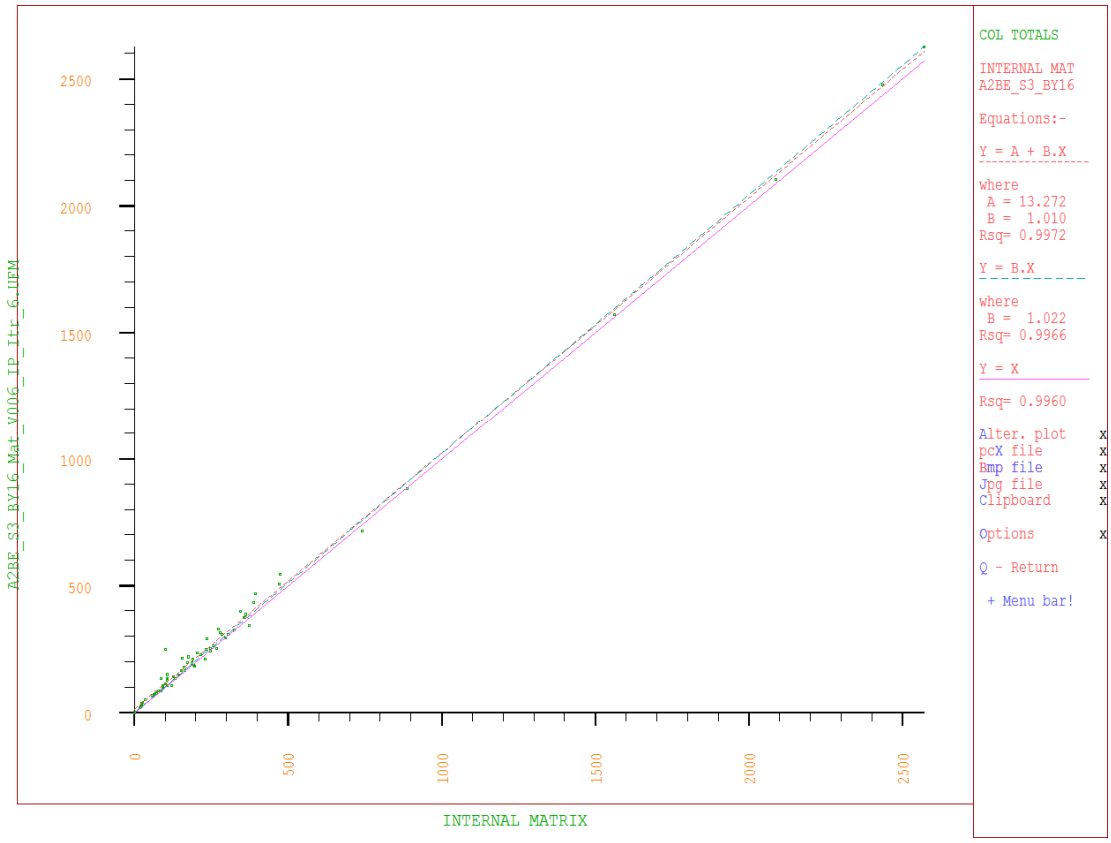
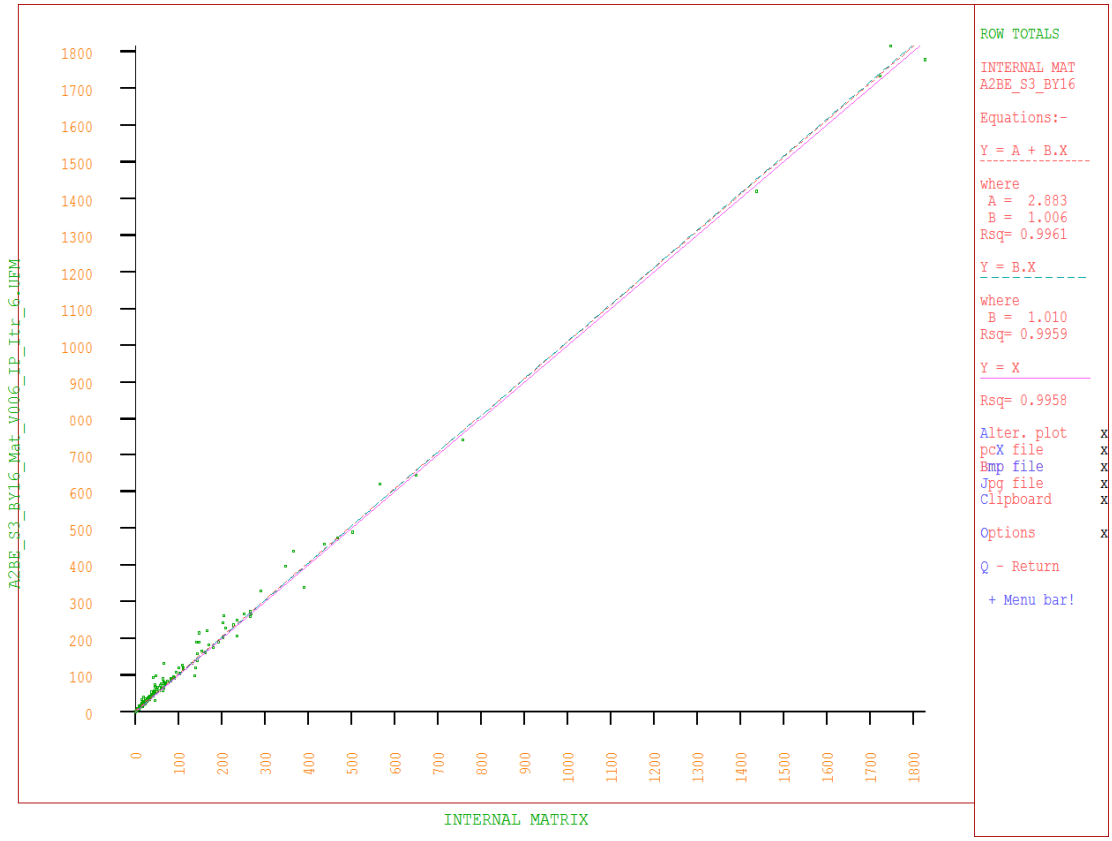


Figure A. 9 Zonal Row Trip End Comparison for Cars (Inter Peak)



A.4 Scatter Plots for all vehicles (Prior vs Post ME – Inter Peak)

Figure A. 10 Zonal Cell Value Comparison for all vehicles (Inter Peak)

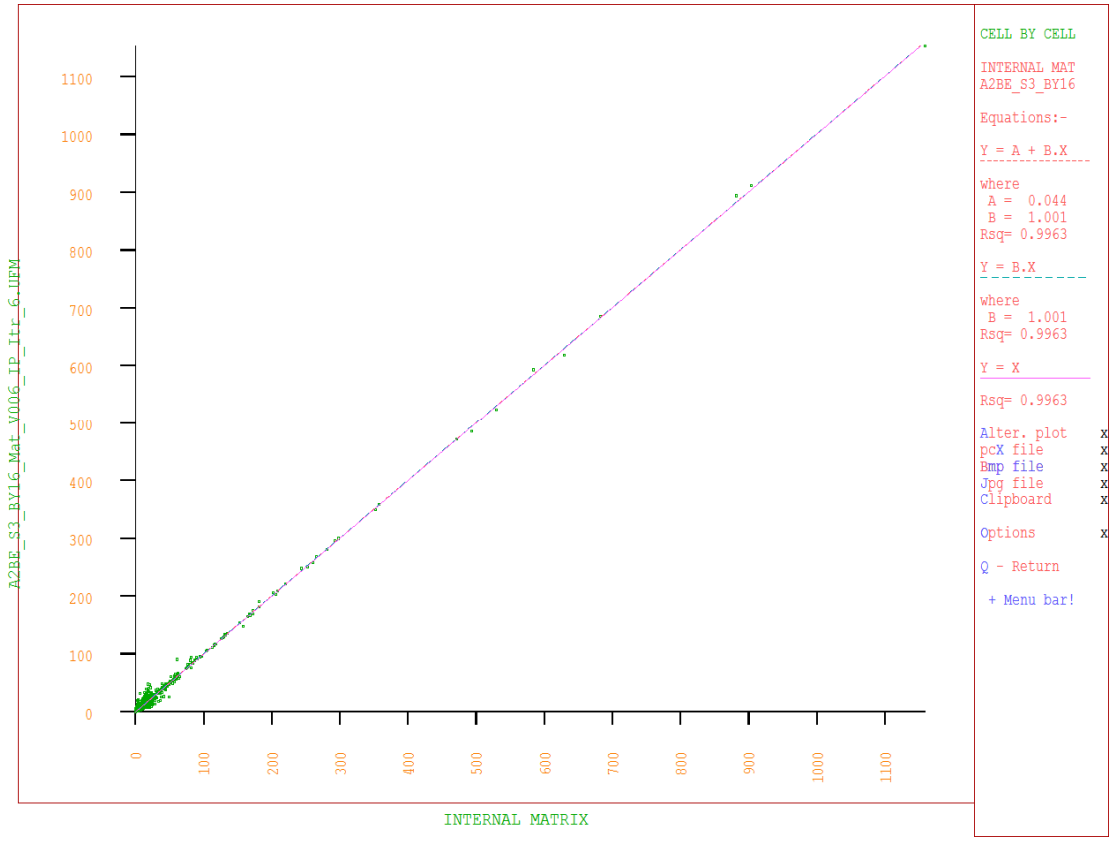


Figure A. 11 Zonal Column Trip End Comparison for all vehicles (Inter Peak)

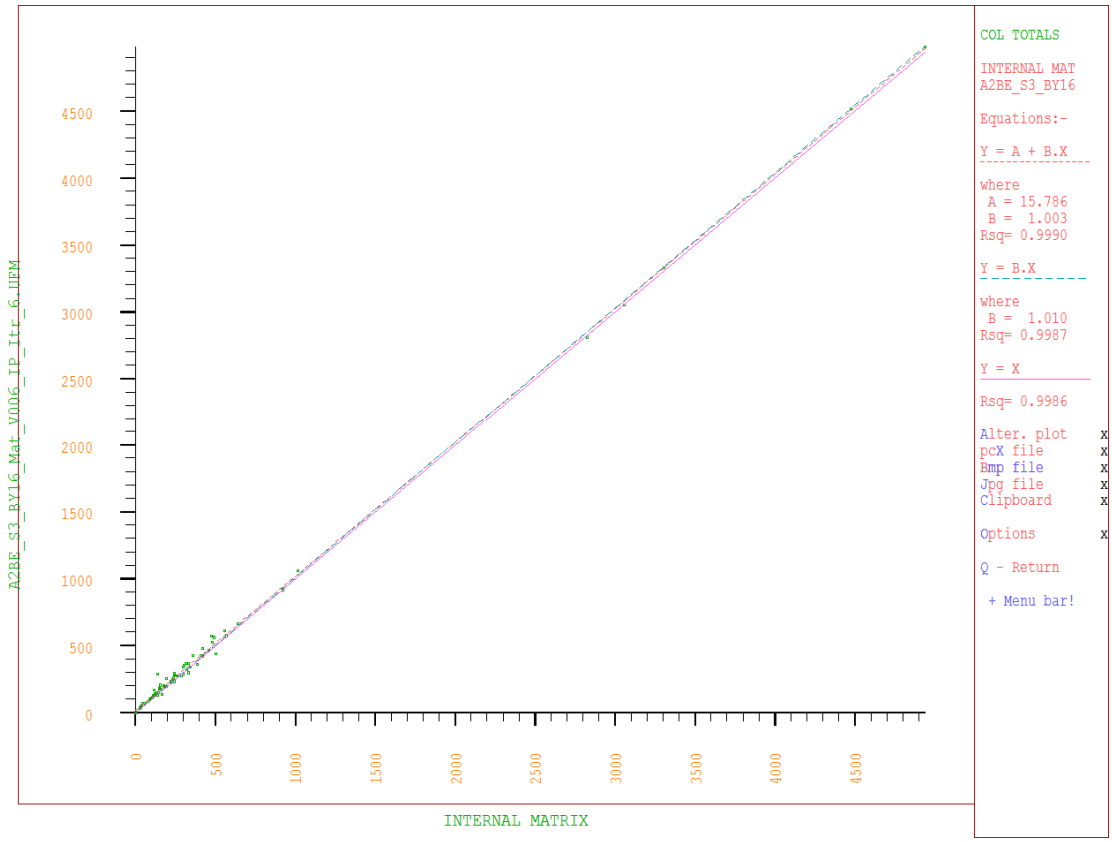
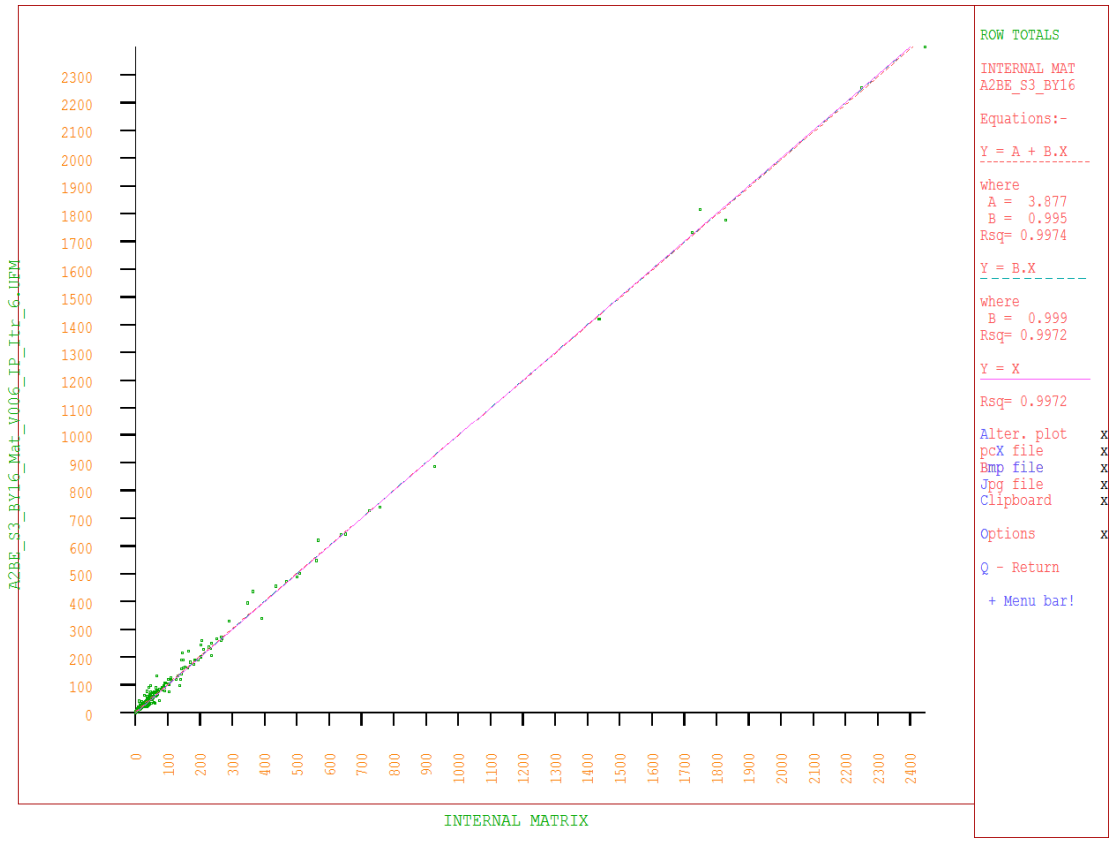


Figure A. 12 Zonal Row Trip End Comparison for all vehicles (Inter Peak)



A.5 Scatter Plots for Cars (Prior vs Post ME – PM Peak)

Figure A. 13 Zonal Cell Value Comparison for Cars (PM Peak)

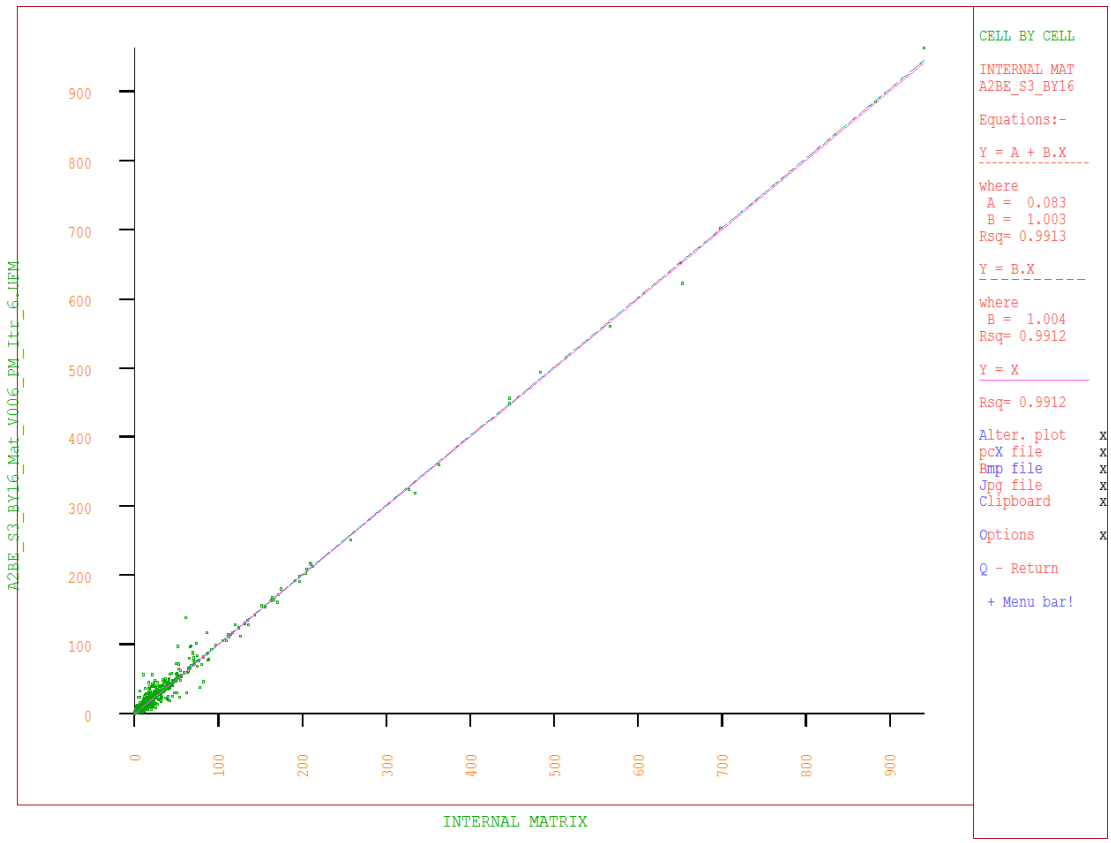


Figure A. 14 Zonal Column Trip End Comparison for Cars (PM Peak)

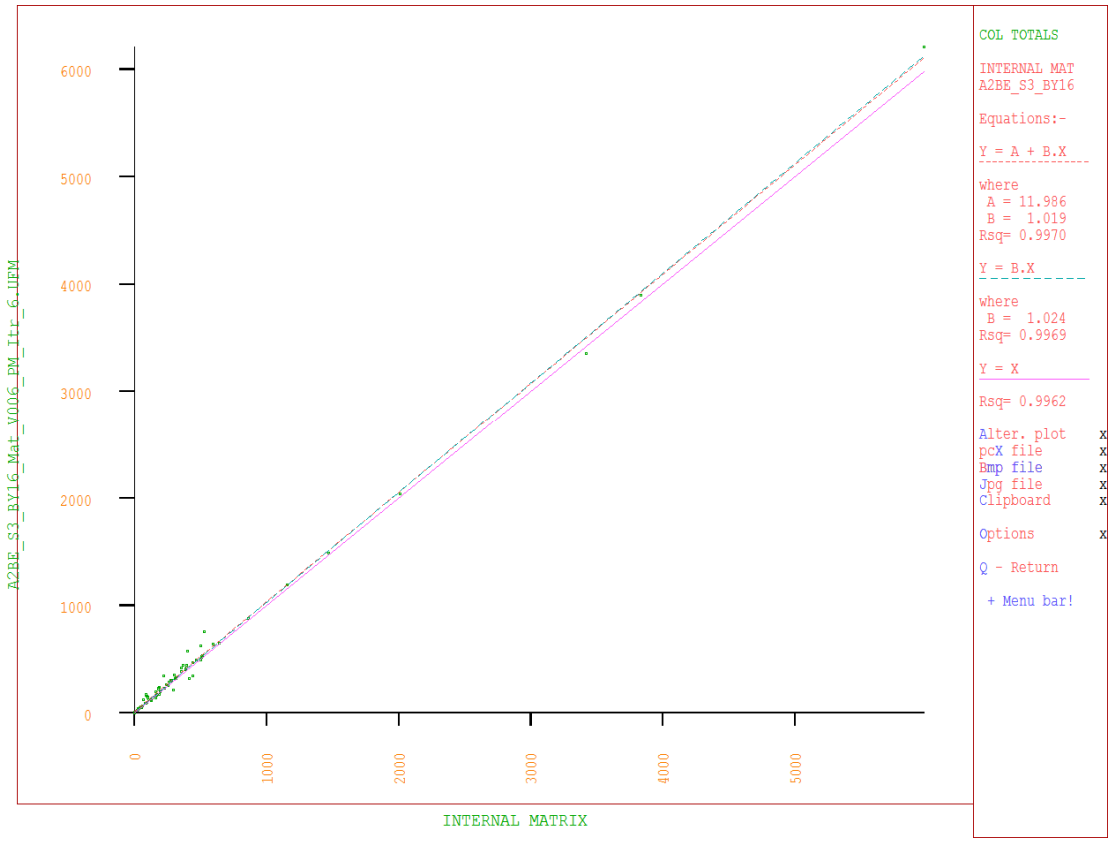
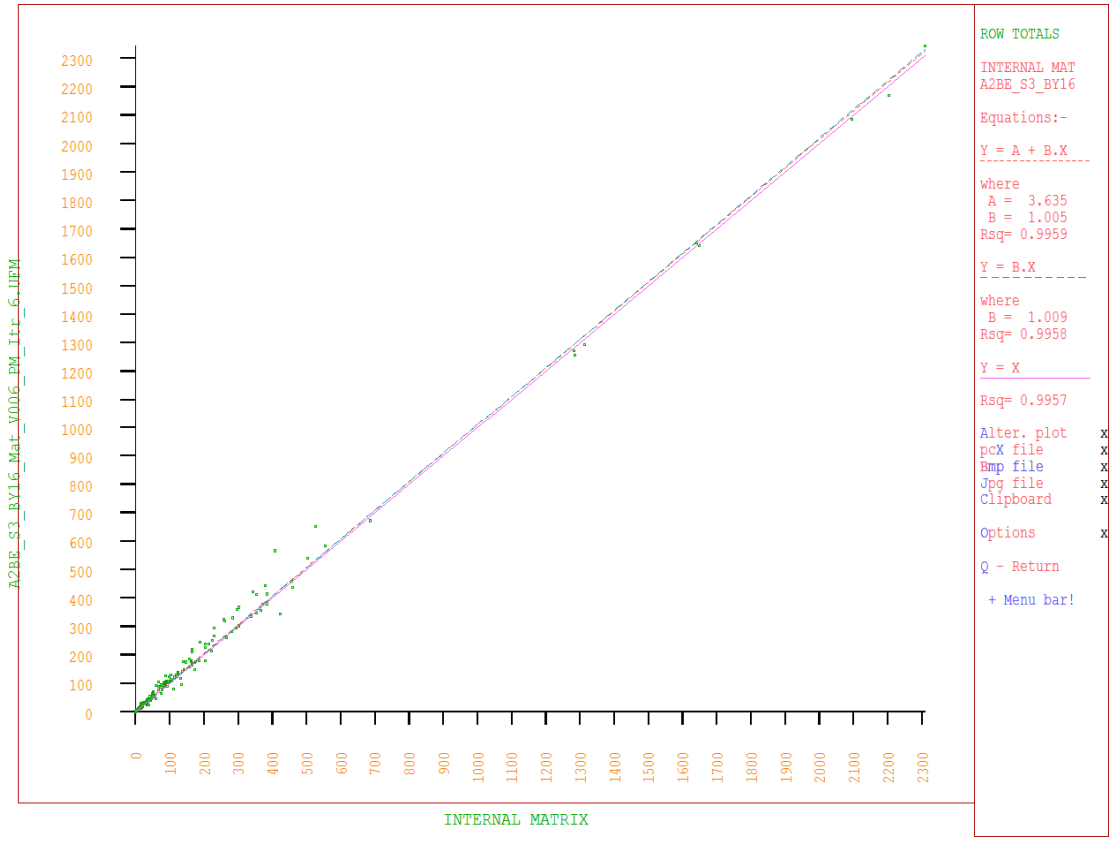


Figure A. 15 Zonal Row Trip End Comparison for Cars (PM Peak)



A.6 Scatter Plots for all vehicles (Prior vs Post ME – PM Peak)

Figure A. 16 Zonal Cell Value Comparison for all vehicles (PM Peak)

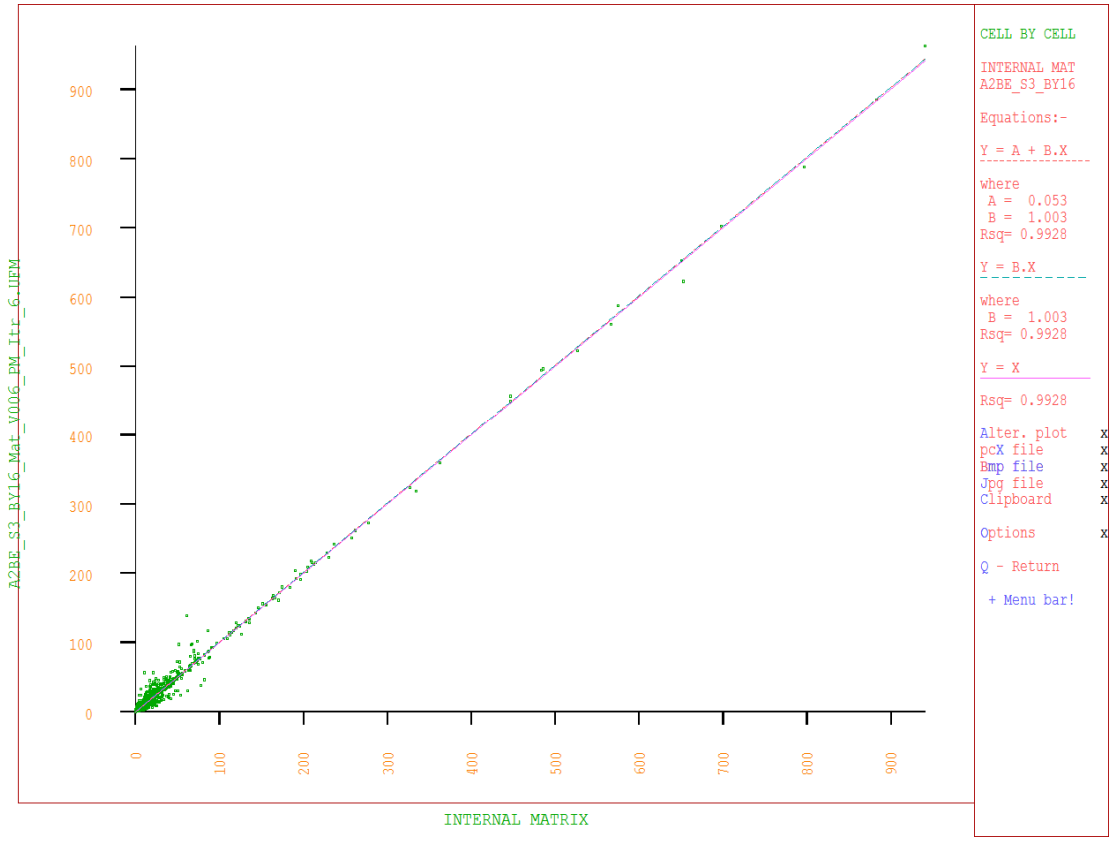


Figure A. 17 Zonal Column Trip End Comparison for all vehicles (PM Peak)

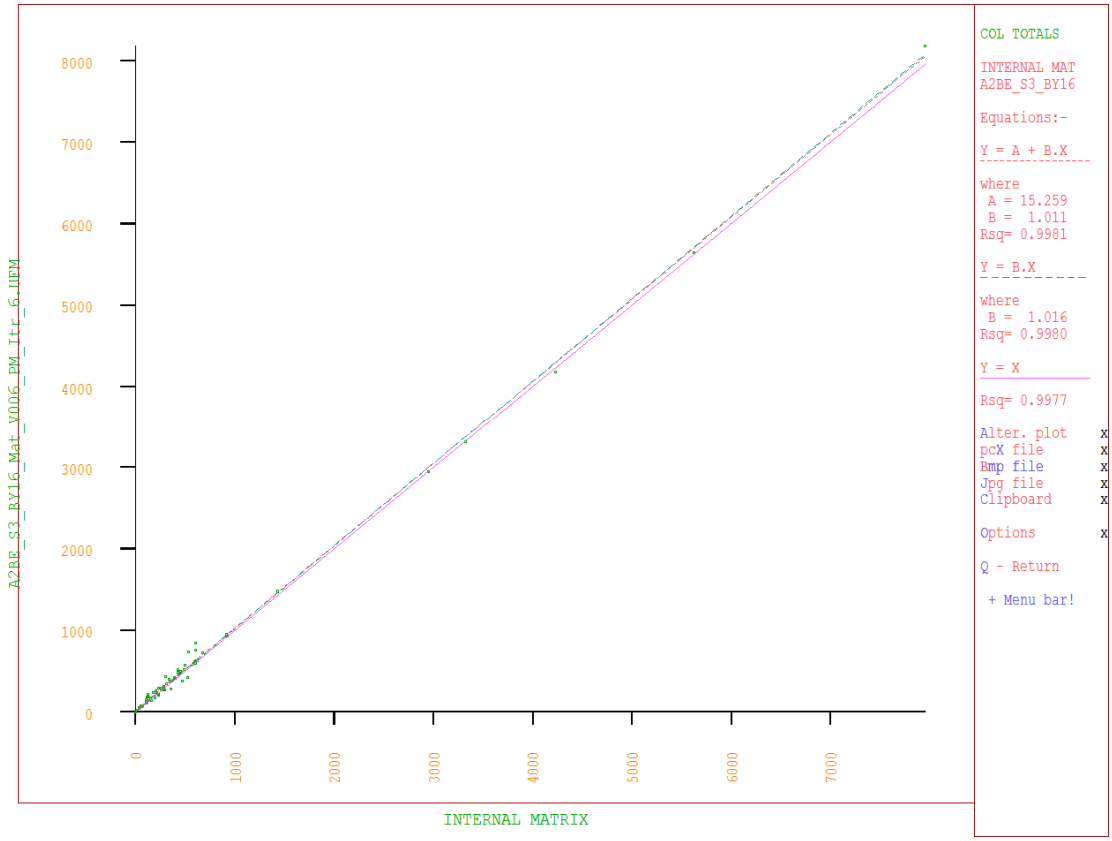
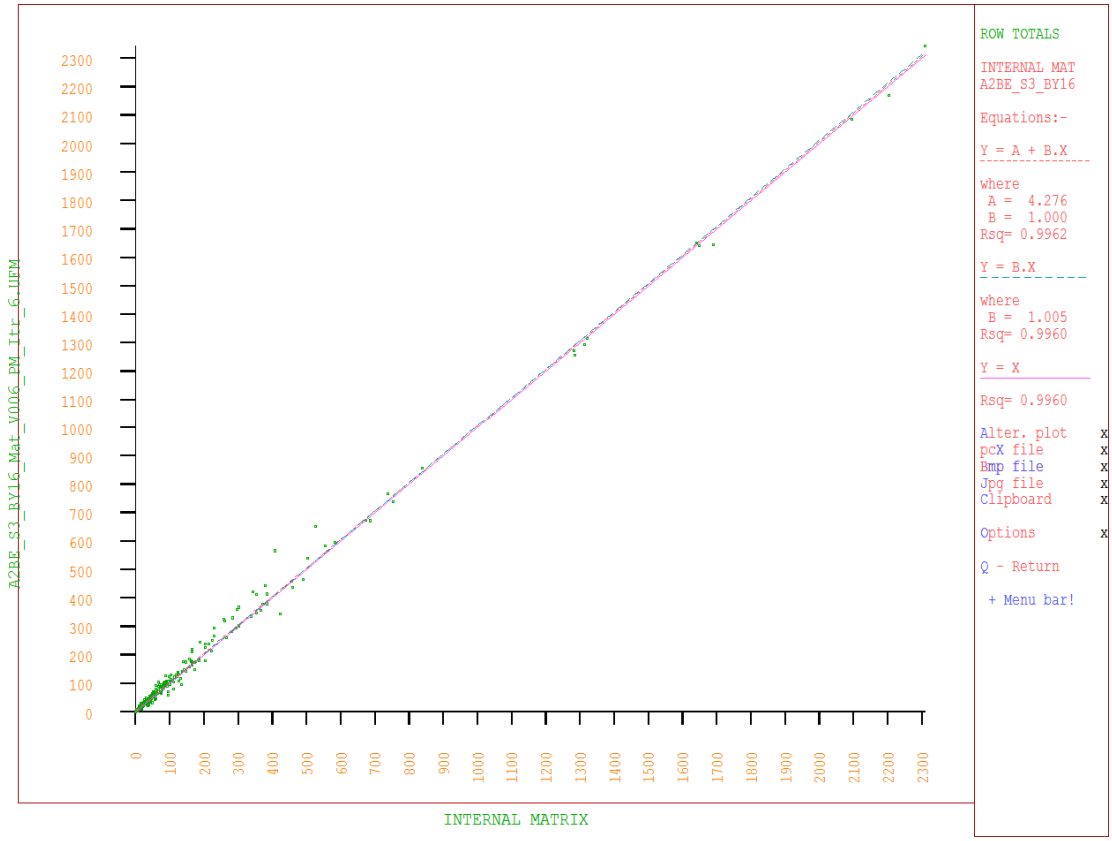


Figure A. 18 Zonal Row Trip End Comparison for all vehicles (PM Peak)



A.7 Trip Length Distribution (Prior vs Post ME – AM Peak)

Figure A. 19 Trip Length Distribution for Car – AM Peak

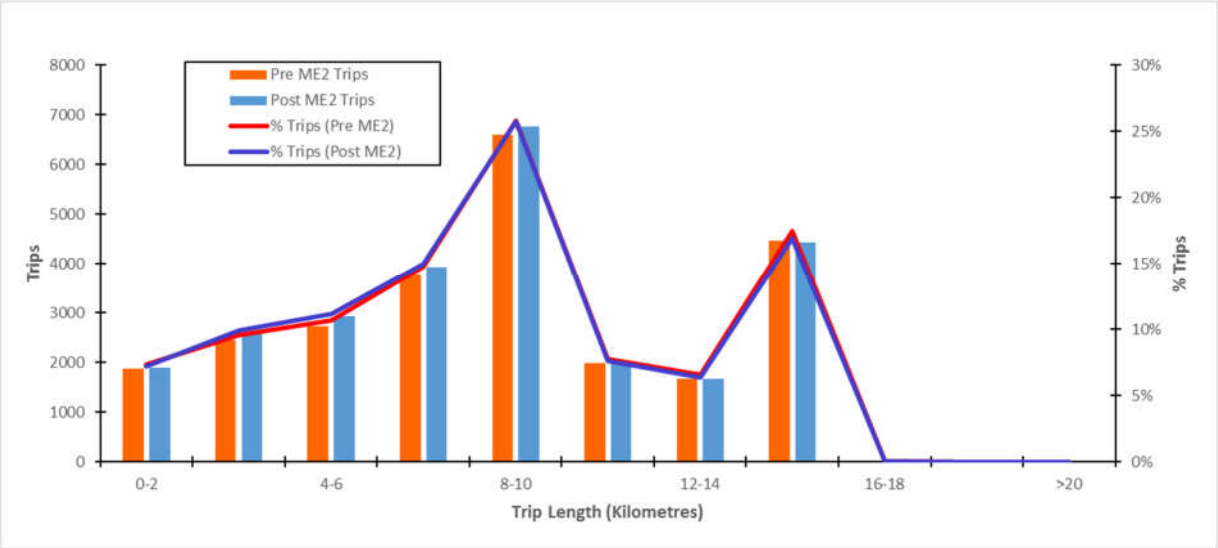


Figure A. 20 Trip Length Distribution for LGV – AM Peak

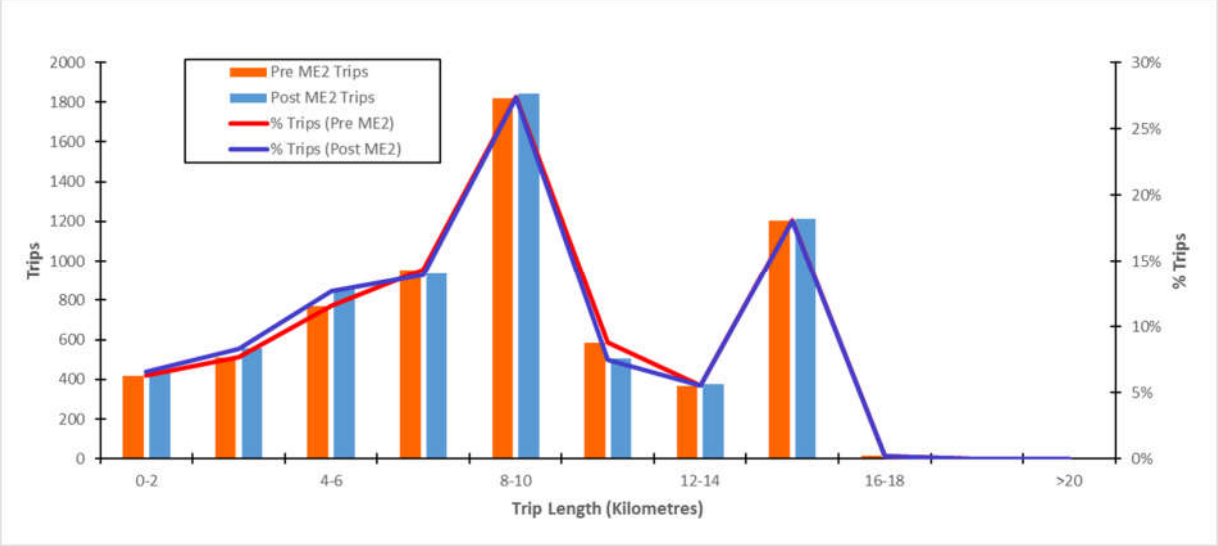
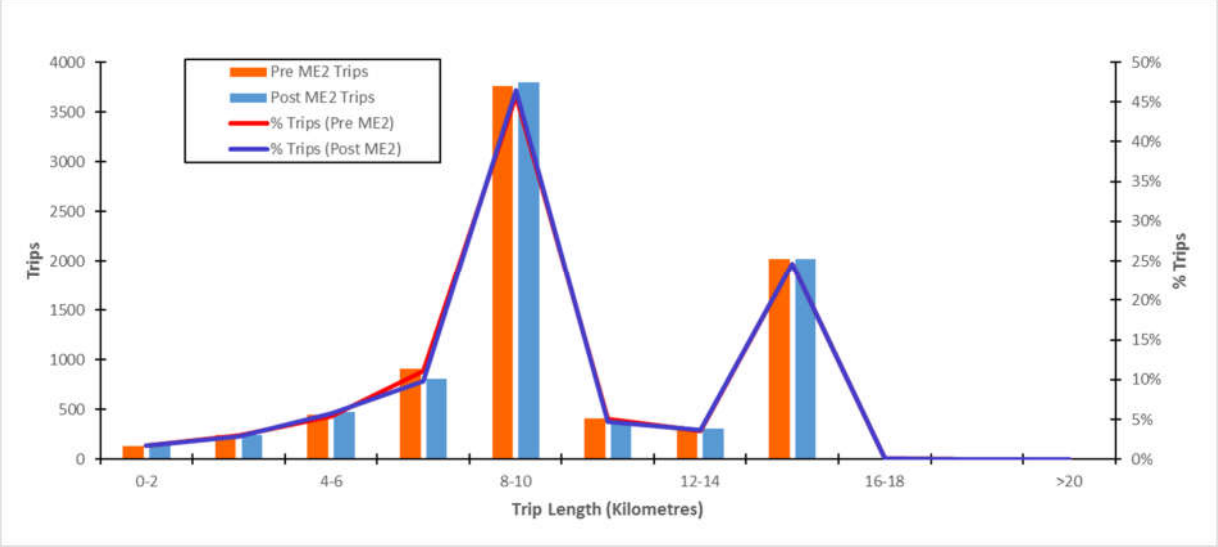


Figure A. 21 Trip Length Distribution for HGV – AM Peak



A.8 Trip Length Distribution (Prior vs Post ME – Inter Peak)

Figure A. 22 Trip Length Distribution for Car – Inter Peak

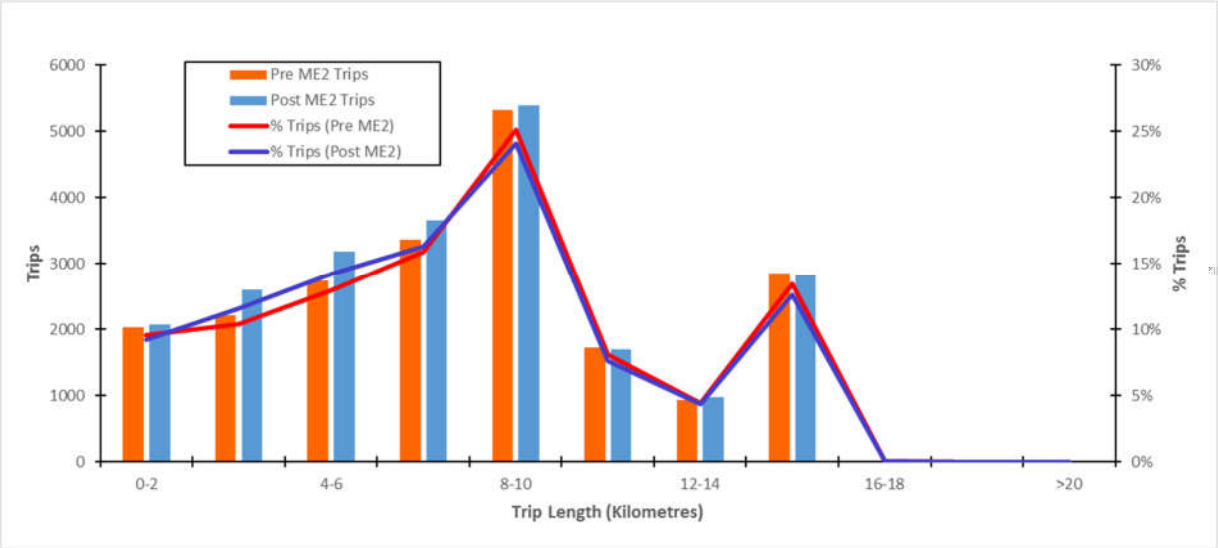


Figure A. 23 Trip Length Distribution for LGV – Inter Peak

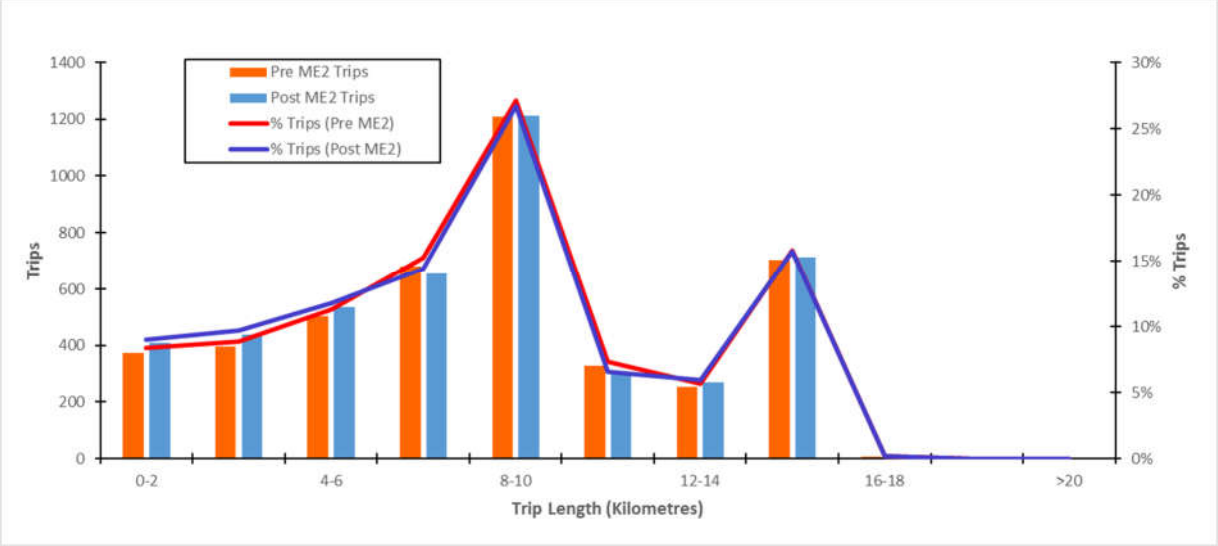
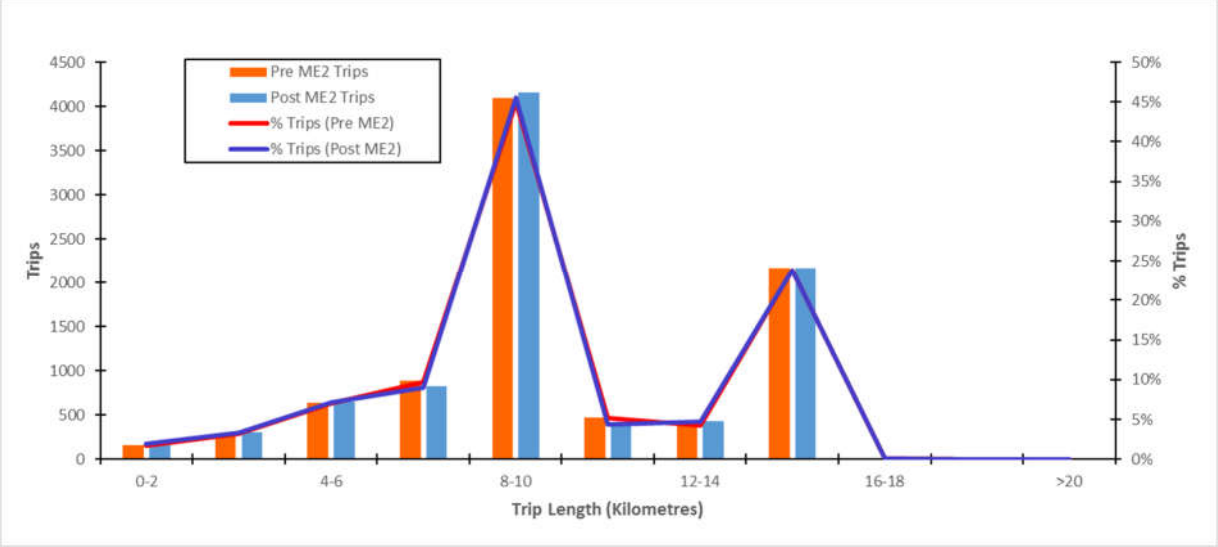


Figure A. 24 Trip Length Distribution for HGV – Inter Peak



A.9 Trip Length Distribution (Prior vs Post ME –PM Peak)

Figure A. 25 Trip Length Distribution for Car – PM Peak

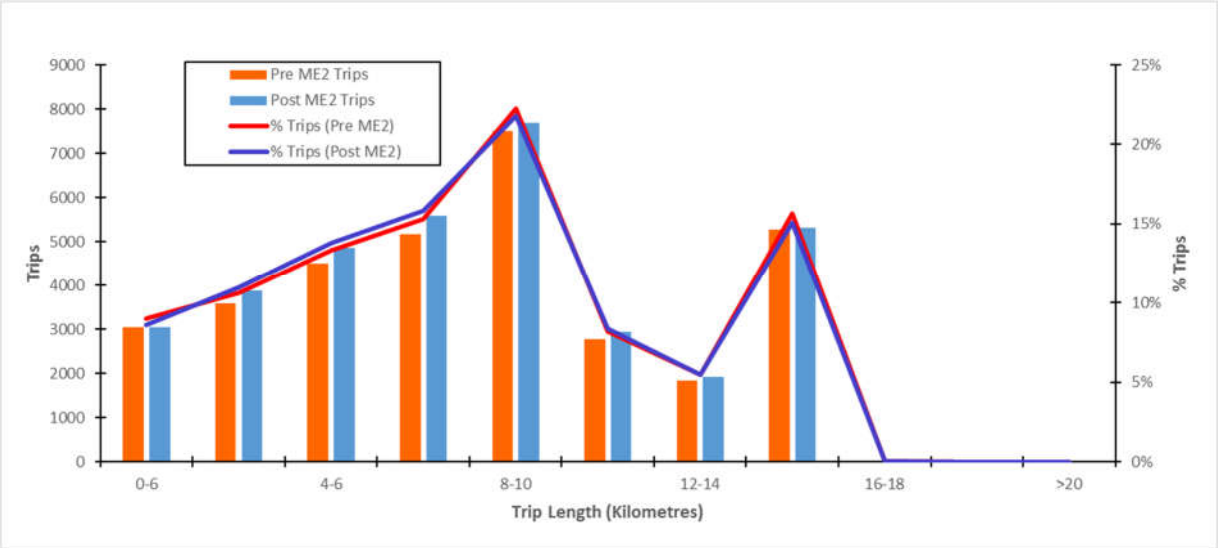


Figure A. 26 Trip Length Distribution for LGV – PM Peak

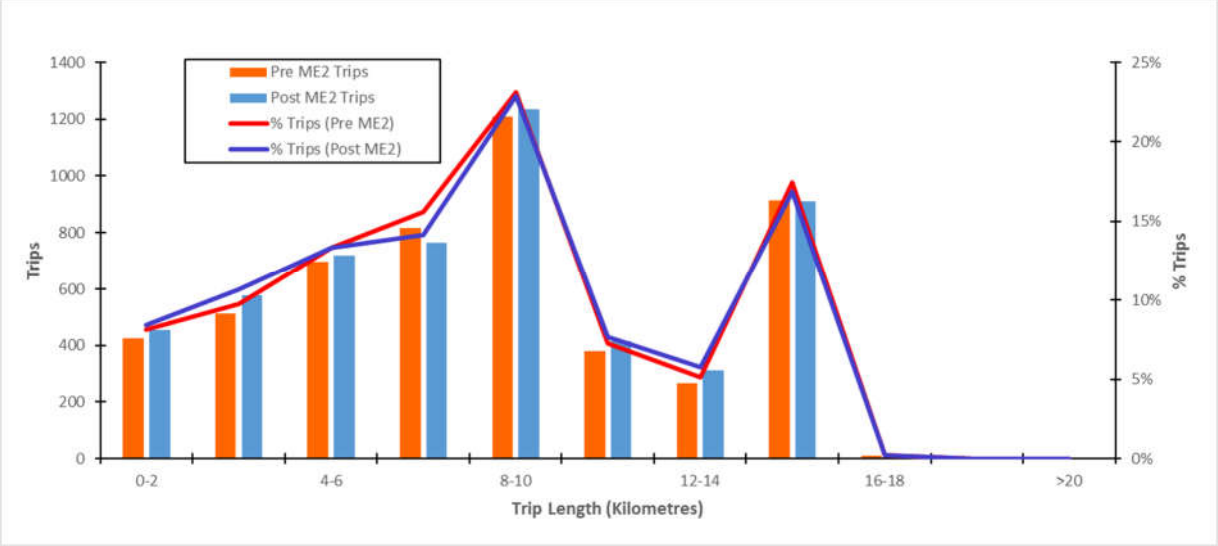
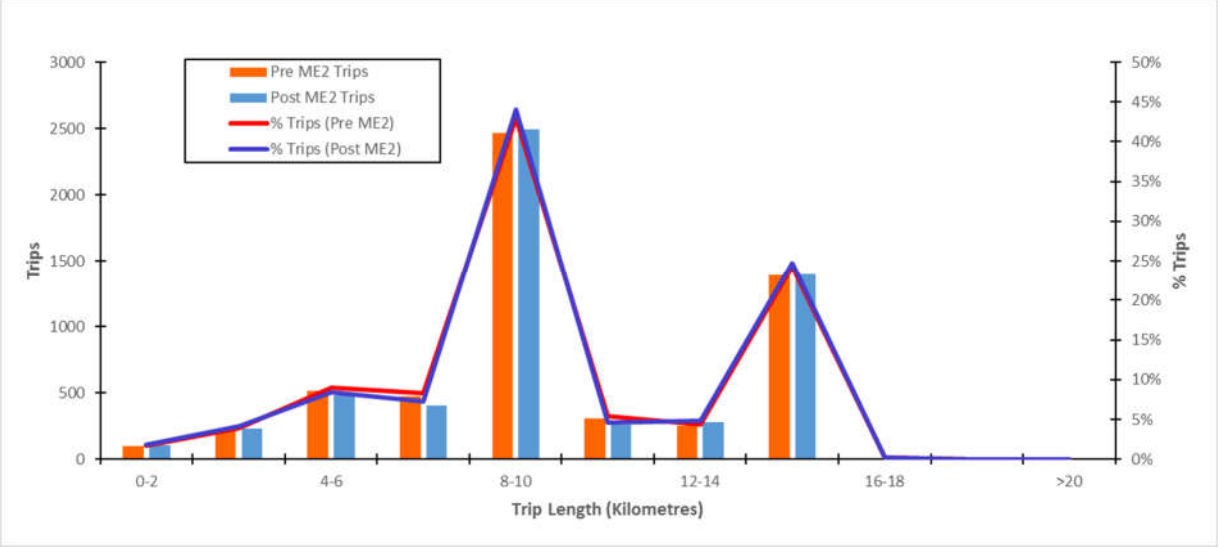


Figure A. 27 Trip Length Distribution for HGV – PM Peak



Appendix B. Route Choice Validation

B.1 Route Choice Validation – AM Peak

Figure B. 1 Longfield to Greenhithe

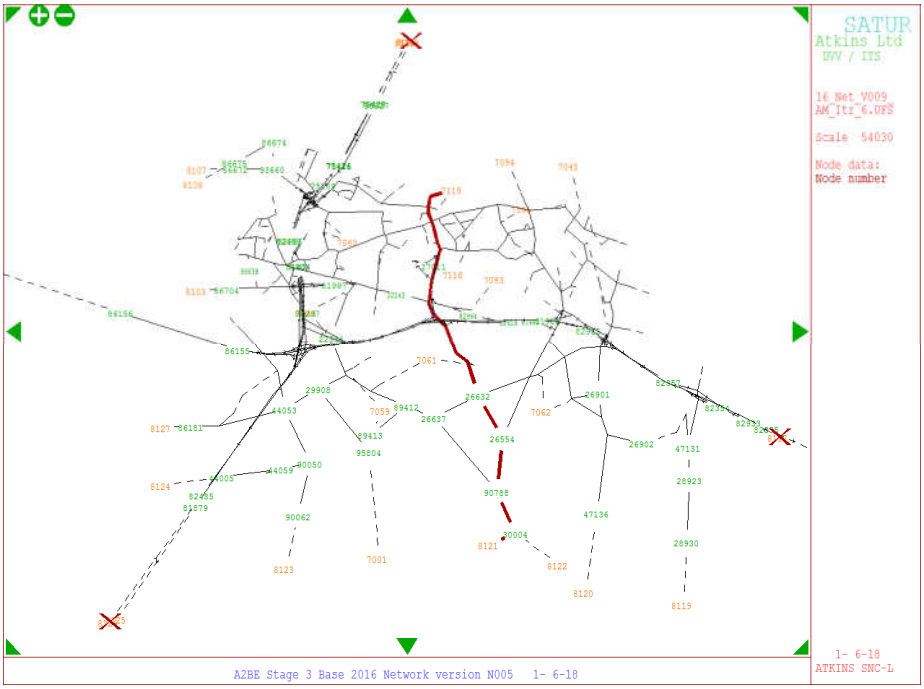


Figure B. 2 Greenhithe to Longfield

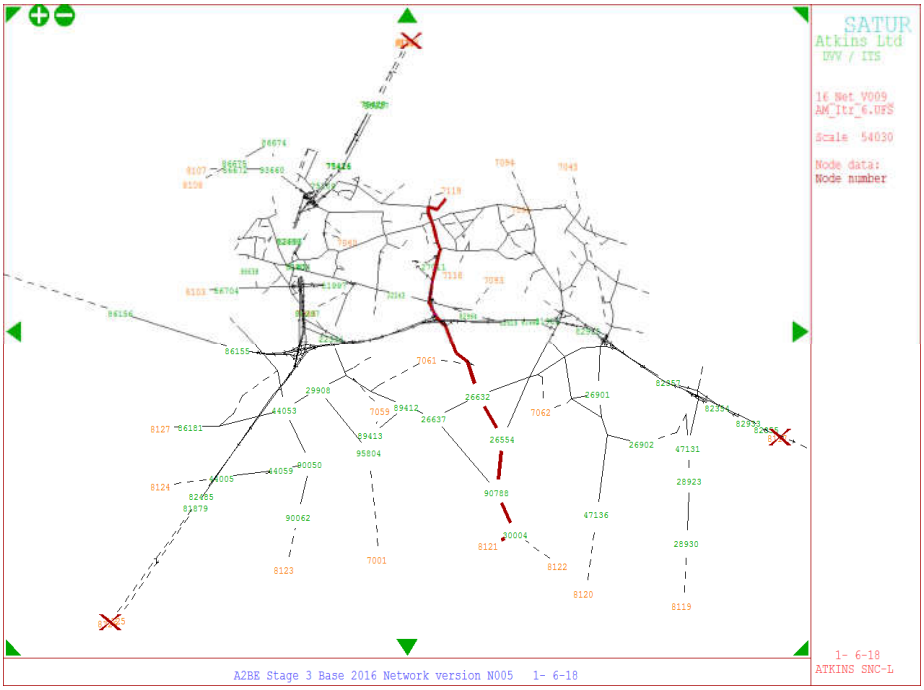


Figure B. 3 Longfield to Princes Road, A225

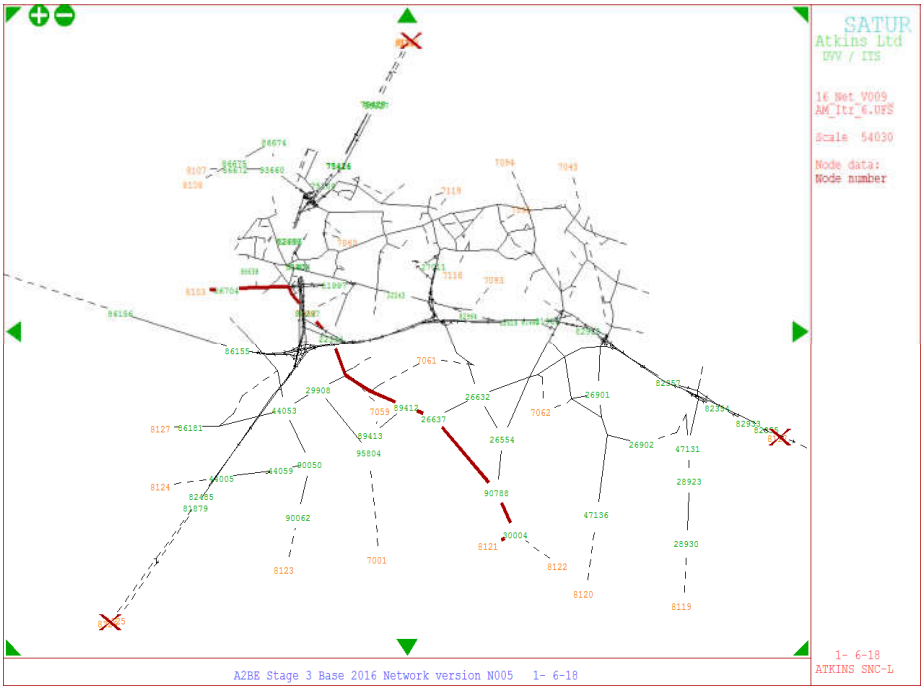


Figure B. 4 Princes Road, A225 to Longfield

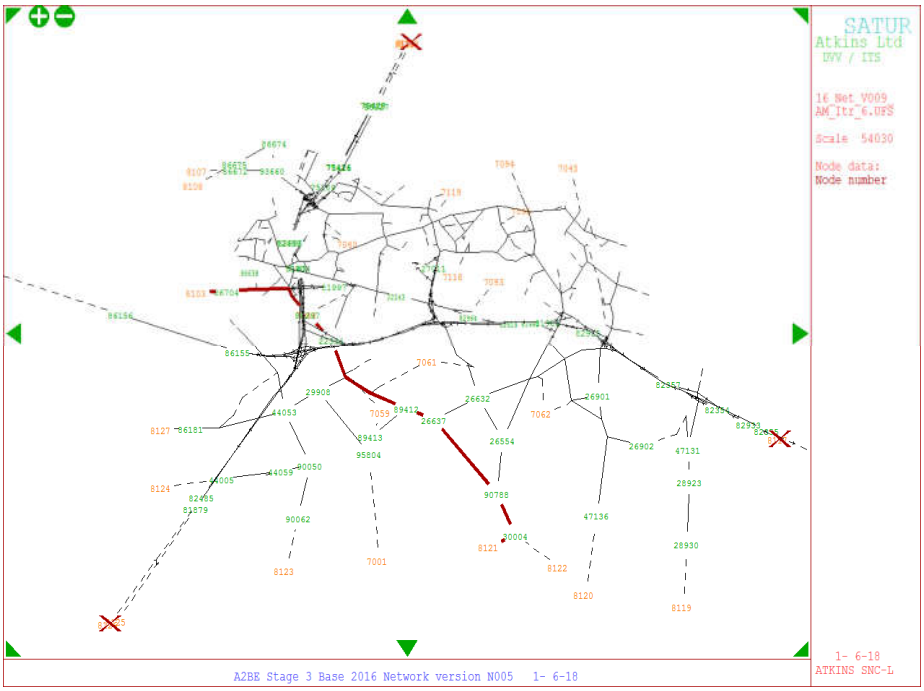


Figure B. 5 Swanscombe to A2 West

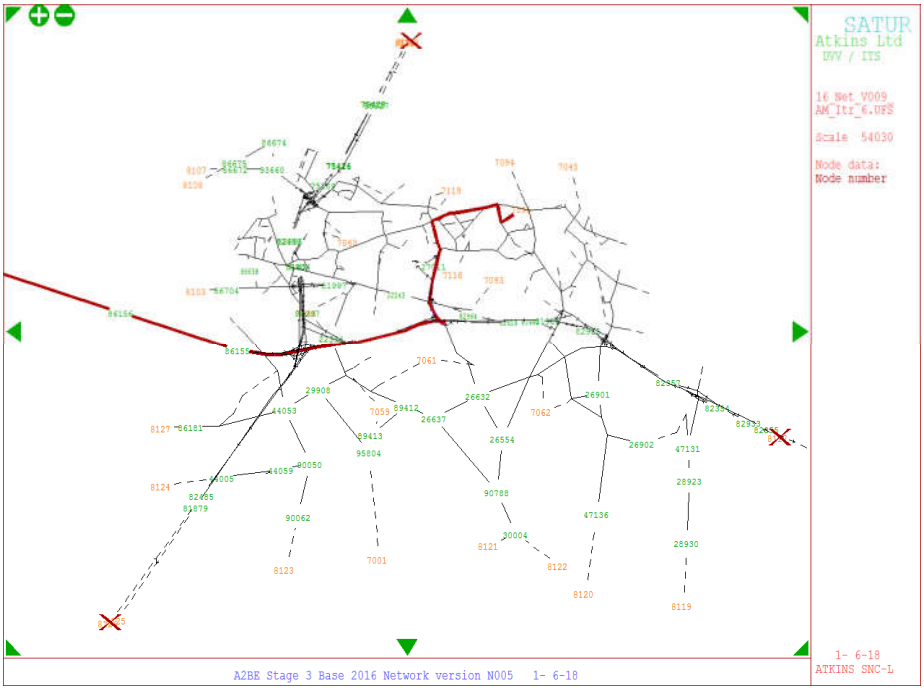


Figure B. 6 A2 West to Swanscombe

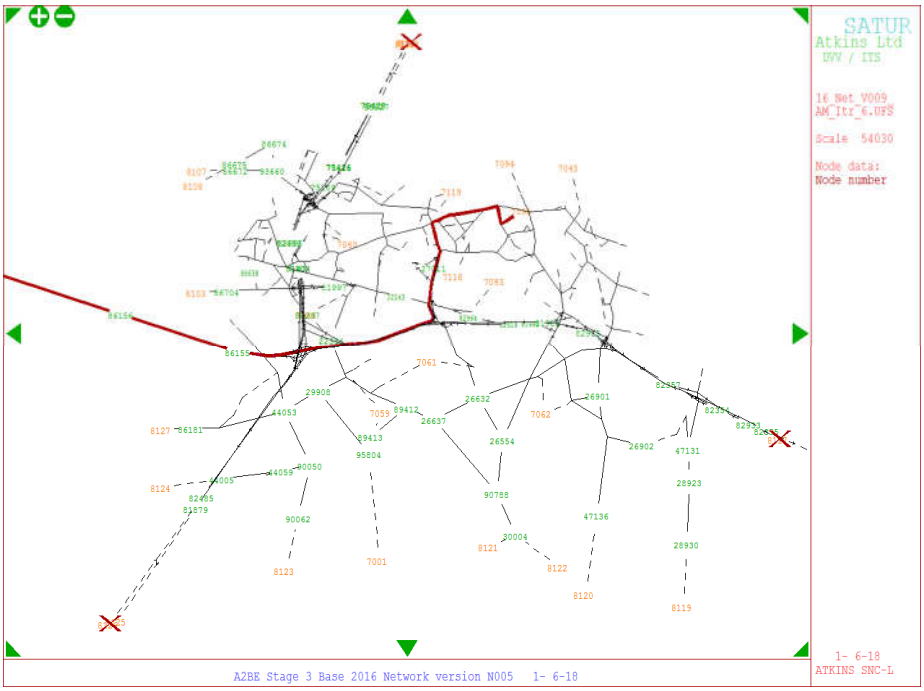


Figure B. 7 Swanscombe to Crossways Business Park

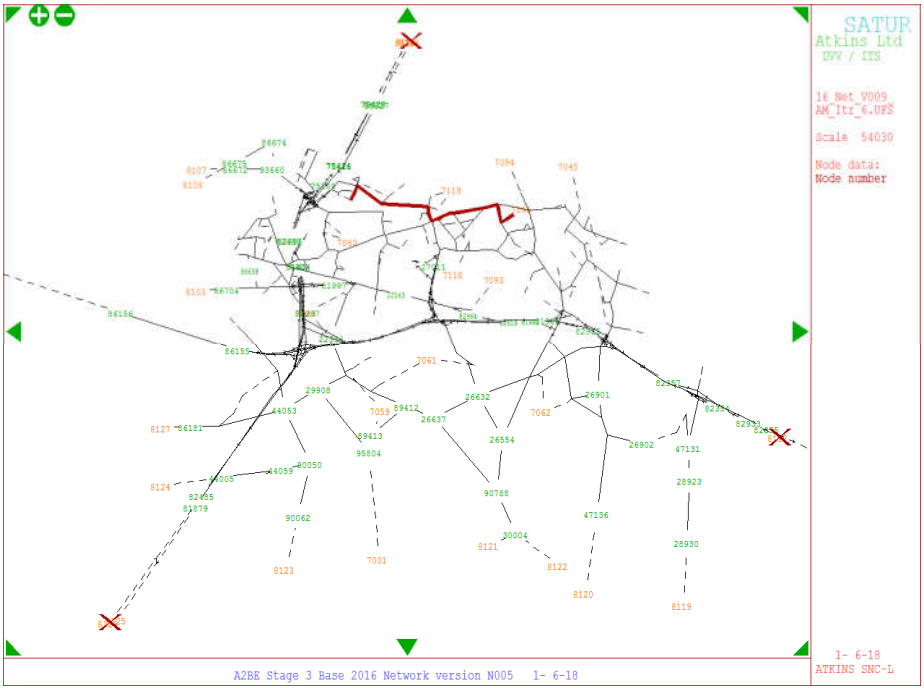


Figure B. 8 Crossways Business Park to Swanscombe

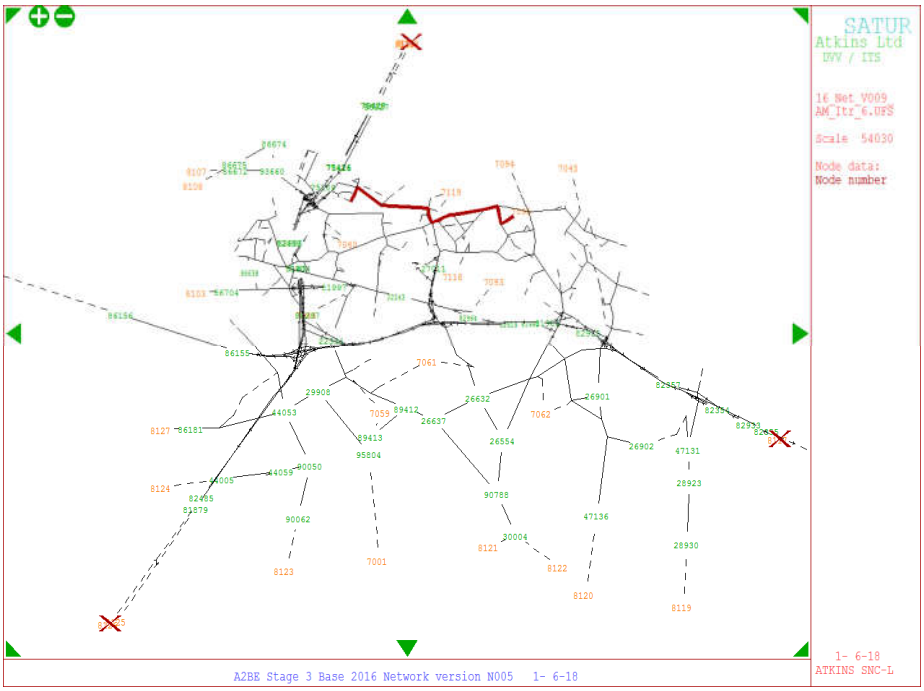


Figure B. 9 M25 South to Bluewater Shopping Centre

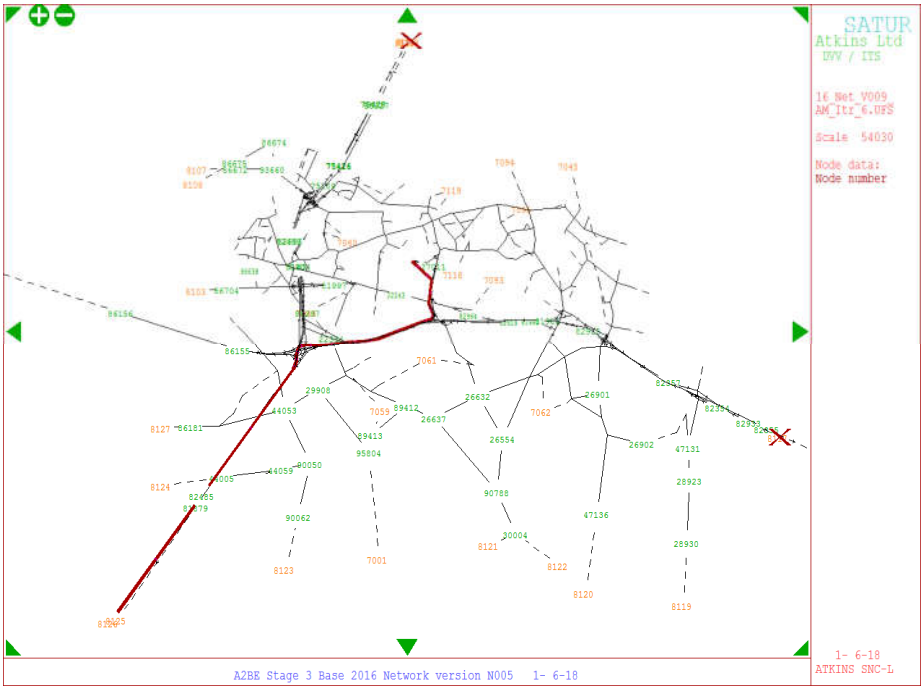


Figure B. 10 Bluewater Shopping Centre to M25 South

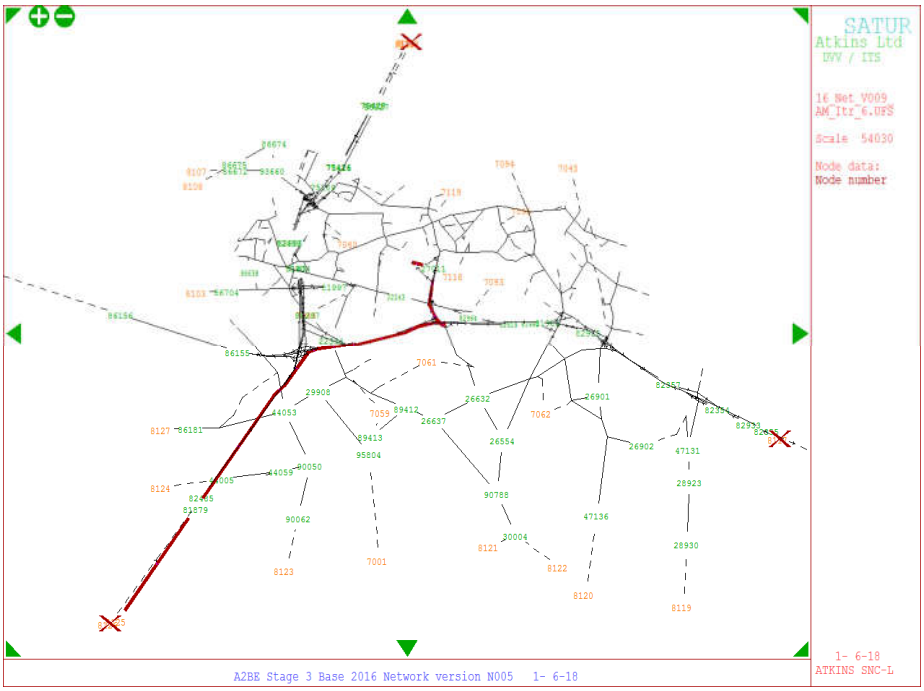


Figure B. 11 A2 East to Bluewater Shopping Centre

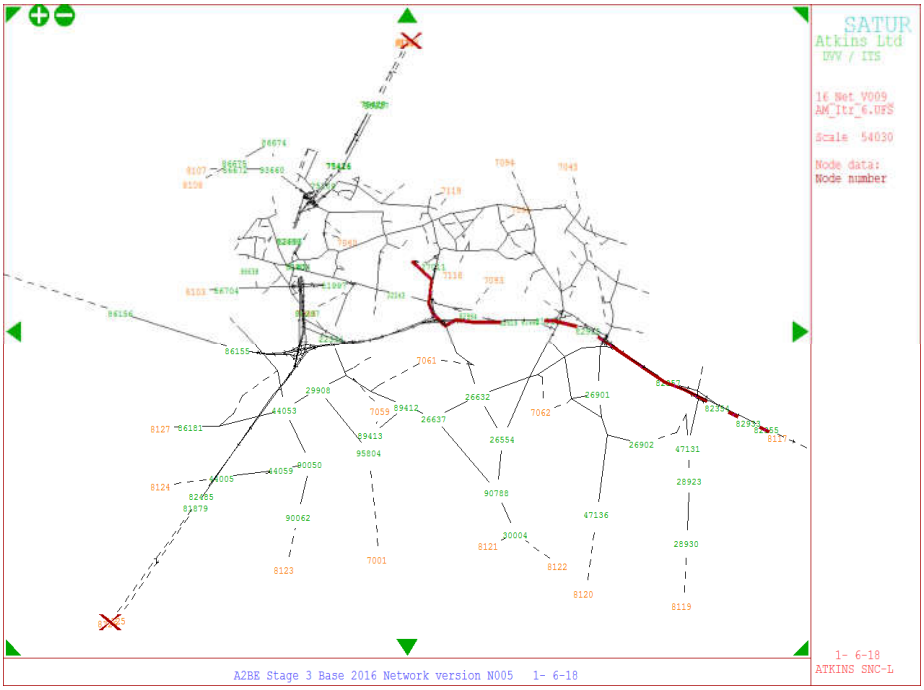


Figure B. 12 Bluewater Shopping Centre to A2 East

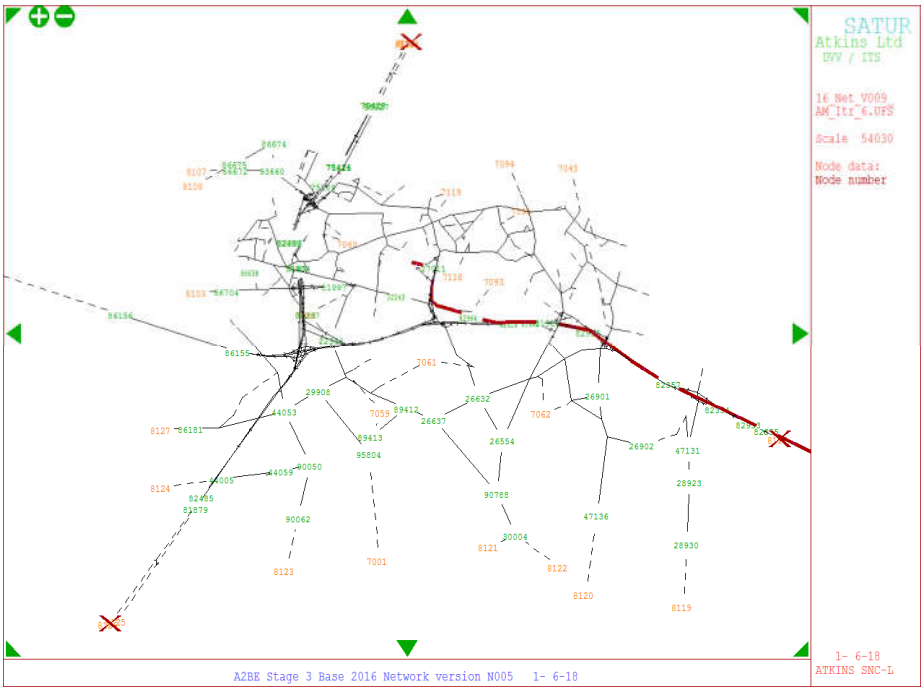


Figure B. 13 Hall road, Northfleet to Bluewater Shopping Centre

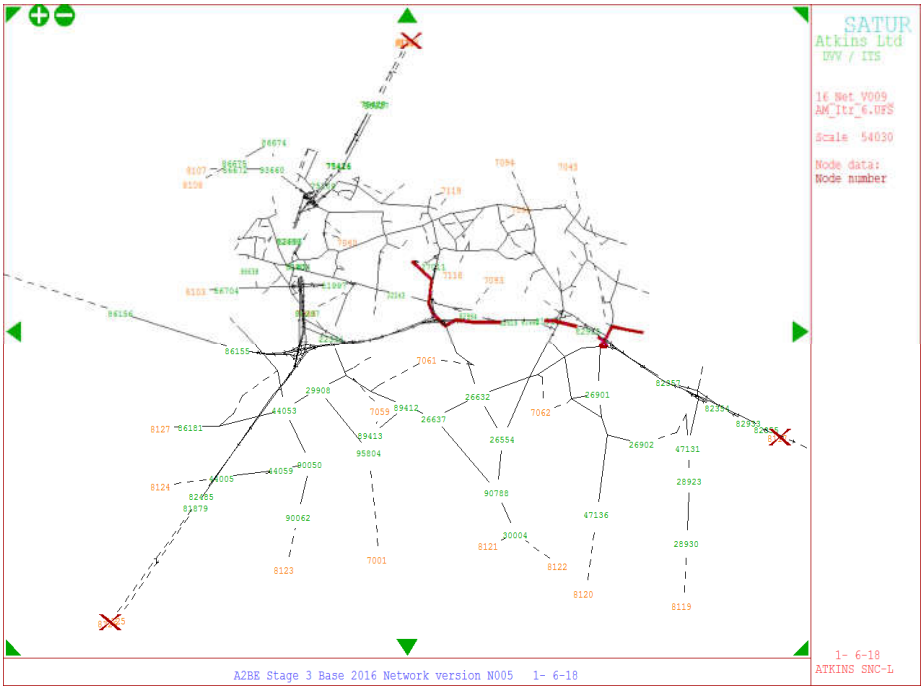
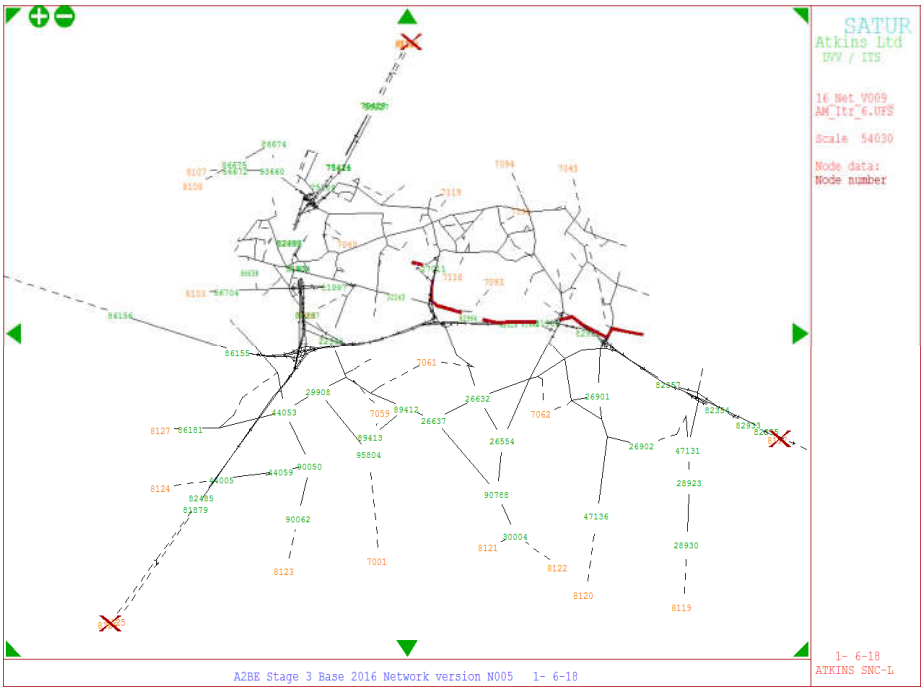


Figure B. 14 Bluewater Shopping Centre to Hall road, Northfleet



B.2 Route Choice Validation – Inter Peak

Figure B. 15 Longfield to Greenhithe

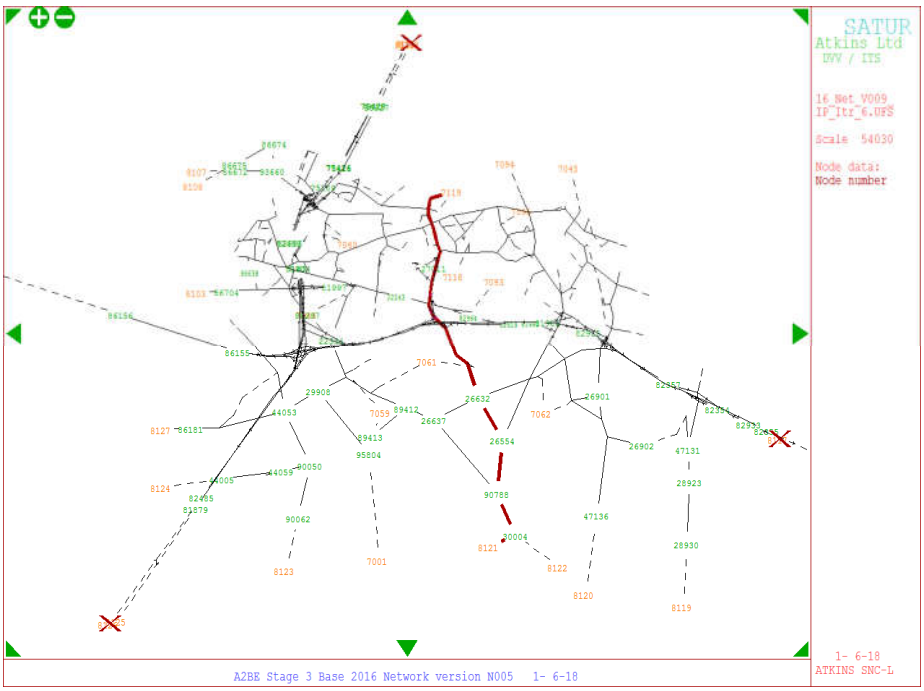


Figure B. 16 Greenhithe to Longfield

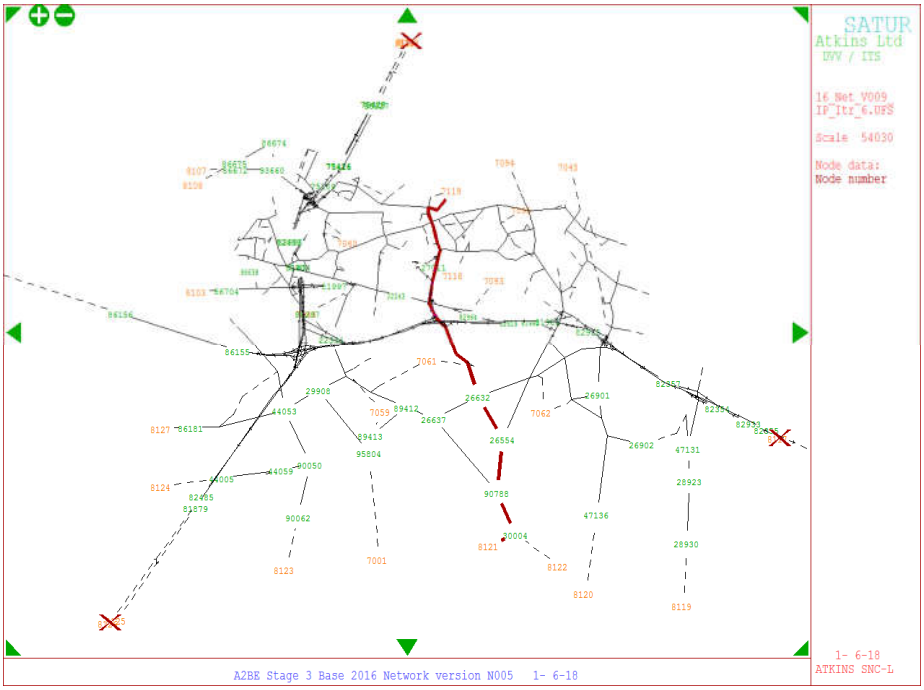


Figure B. 17 Longfield to Princes Road, A225

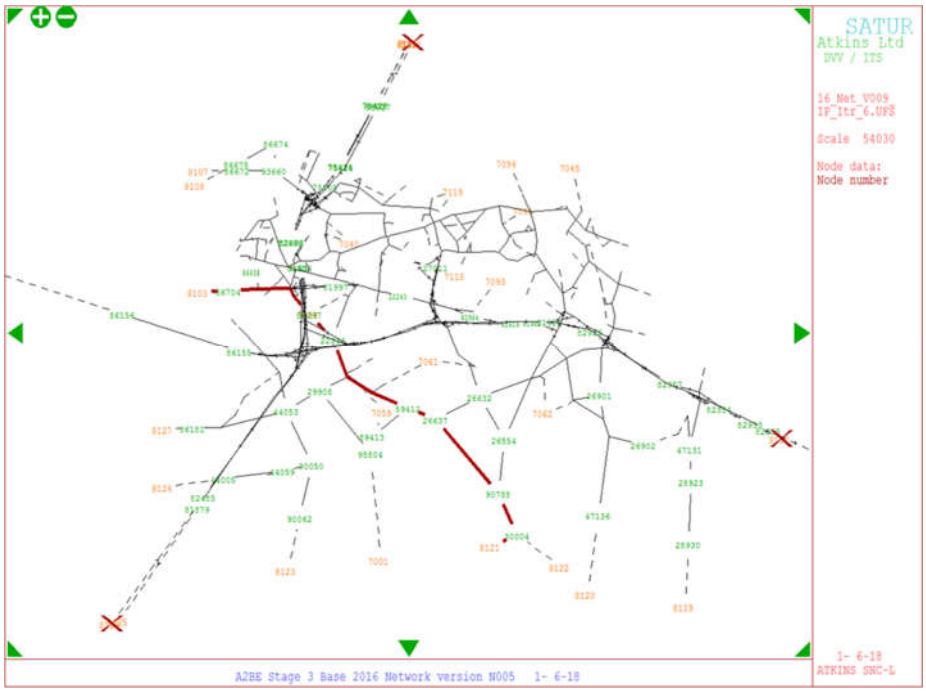


Figure B. 18 Princes Road, A225 to Longfield

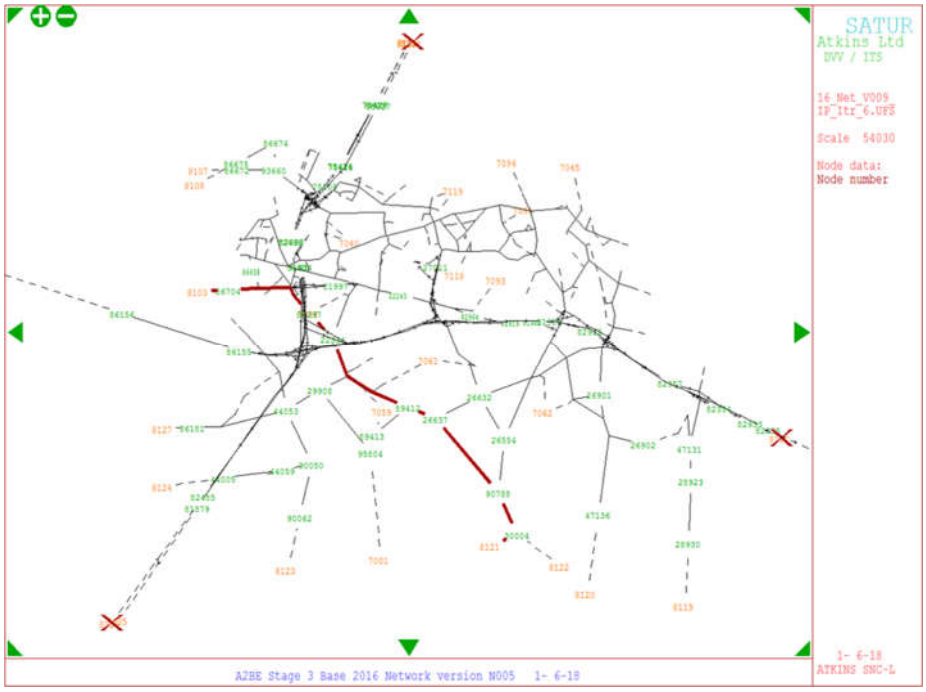


Figure B. 19 Swanscombe to A2 West

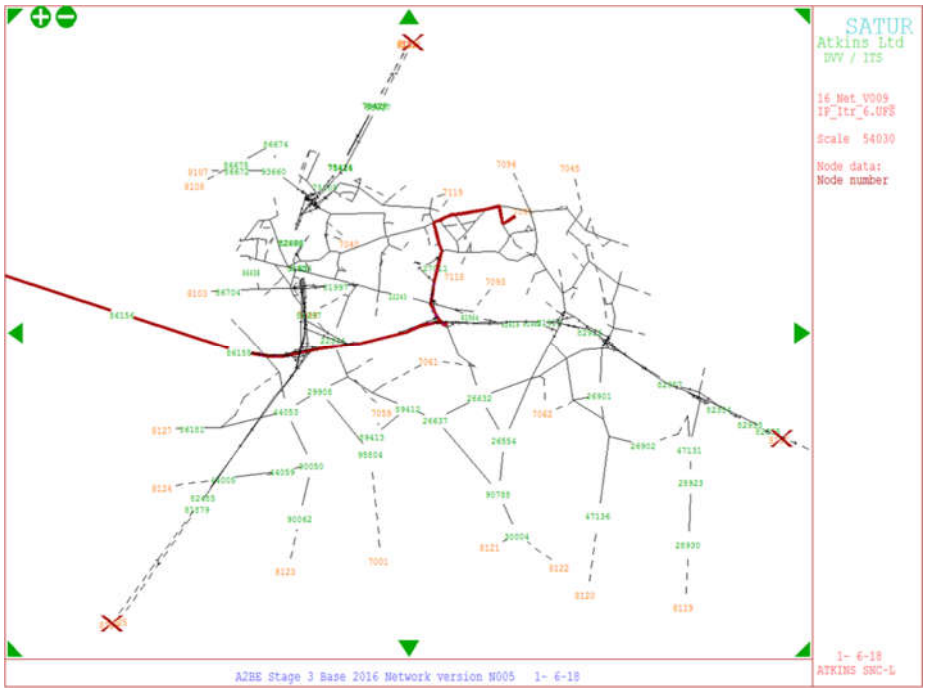


Figure B. 20 A2 West to Swanscombe

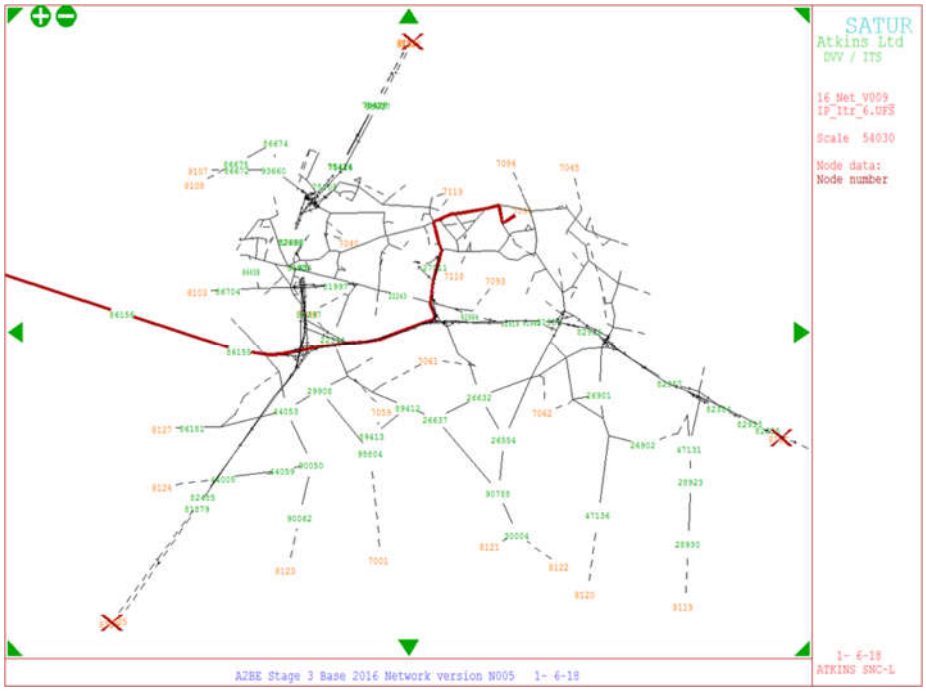


Figure B. 21 Swanscombe to Crossways Business Park

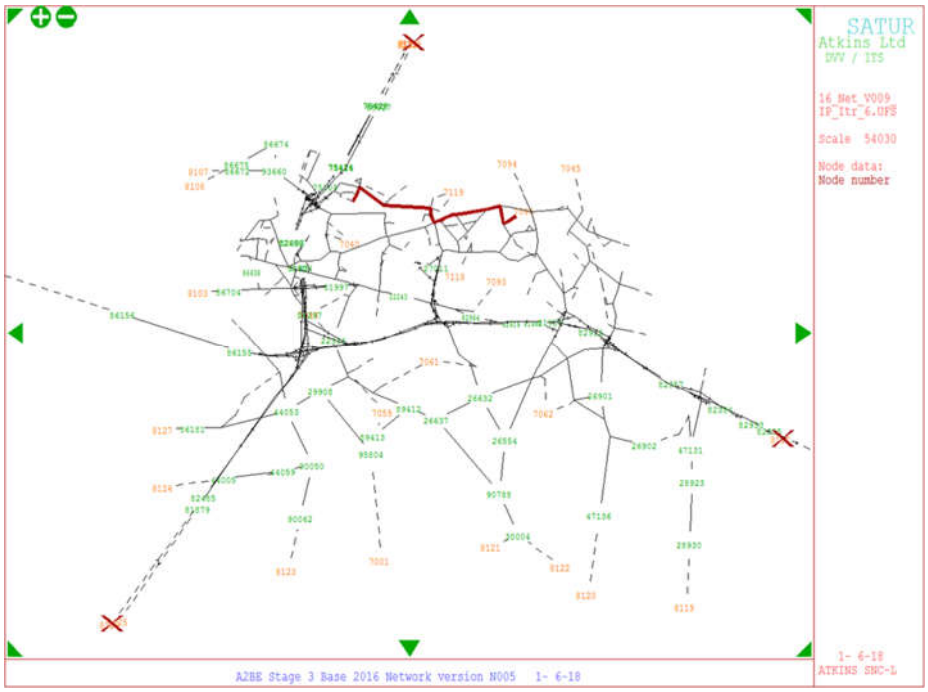


Figure B. 22 Crossways Business Park to Swanscombe

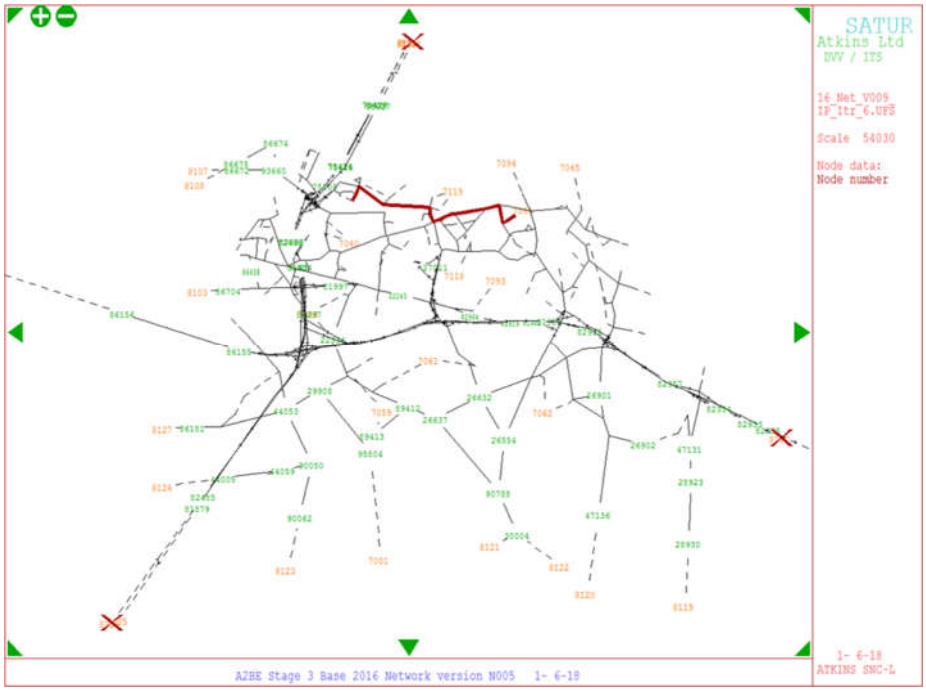


Figure B. 23 M25 South to Bluewater Shopping Centre

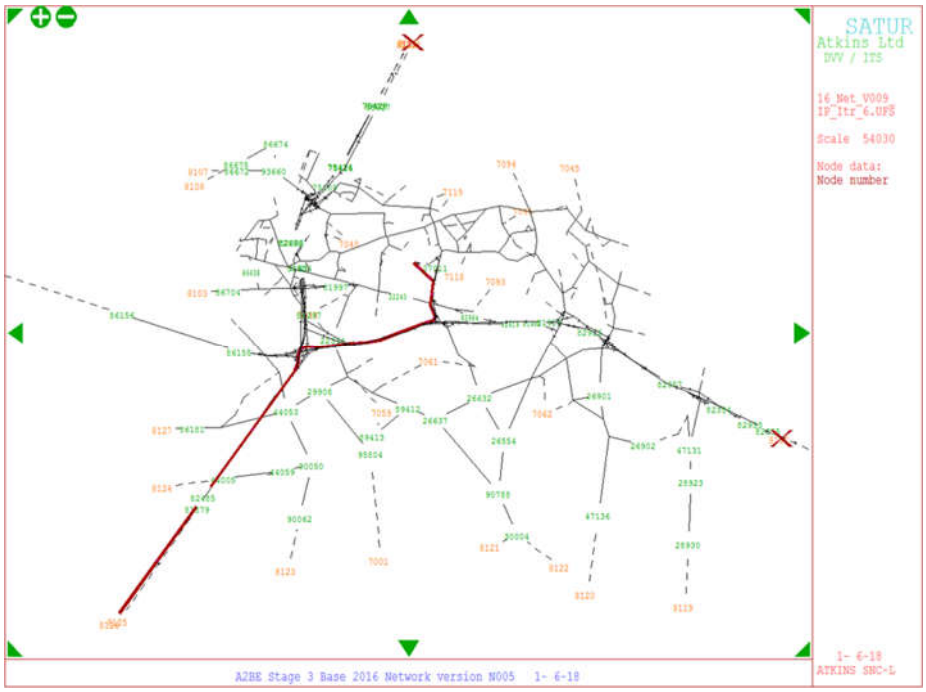


Figure B. 24 Bluewater Shopping Centre to M25 South

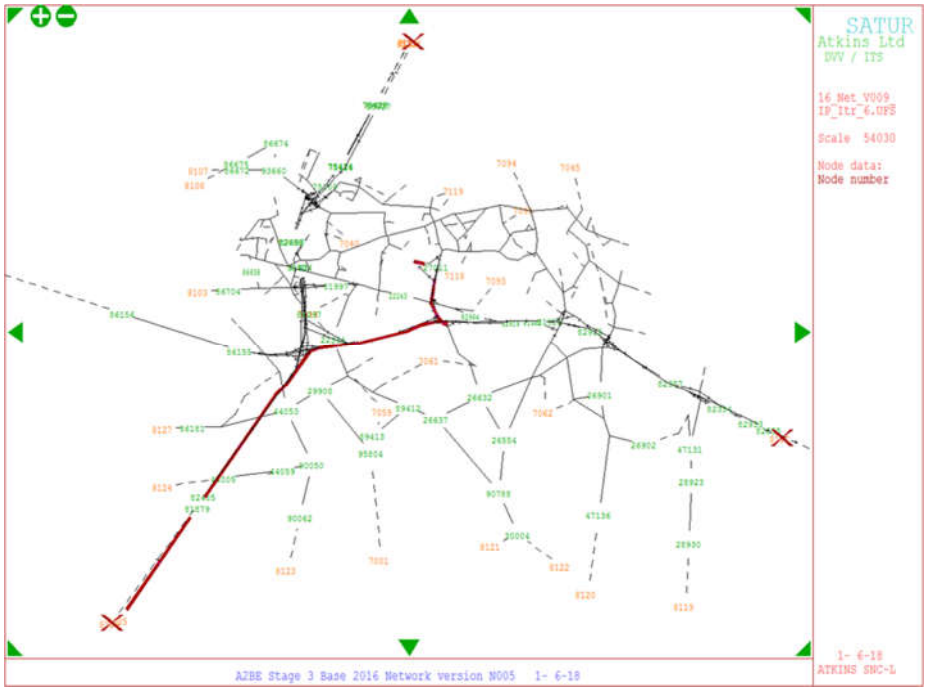


Figure B. 25 A2 East to Bluewater Shopping Centre

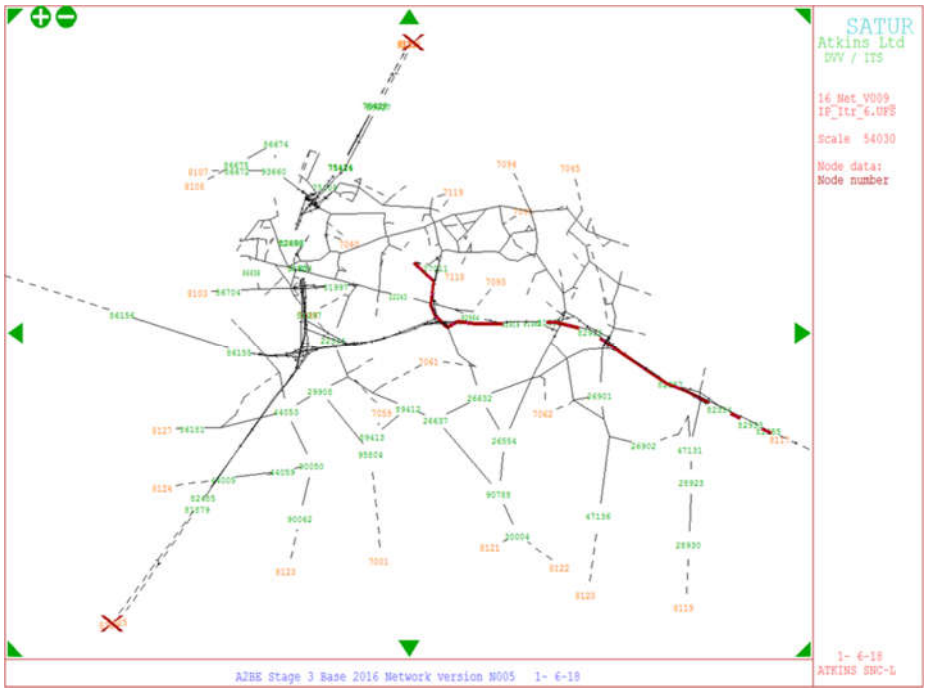


Figure B. 26 Bluewater Shopping Centre to A2 East

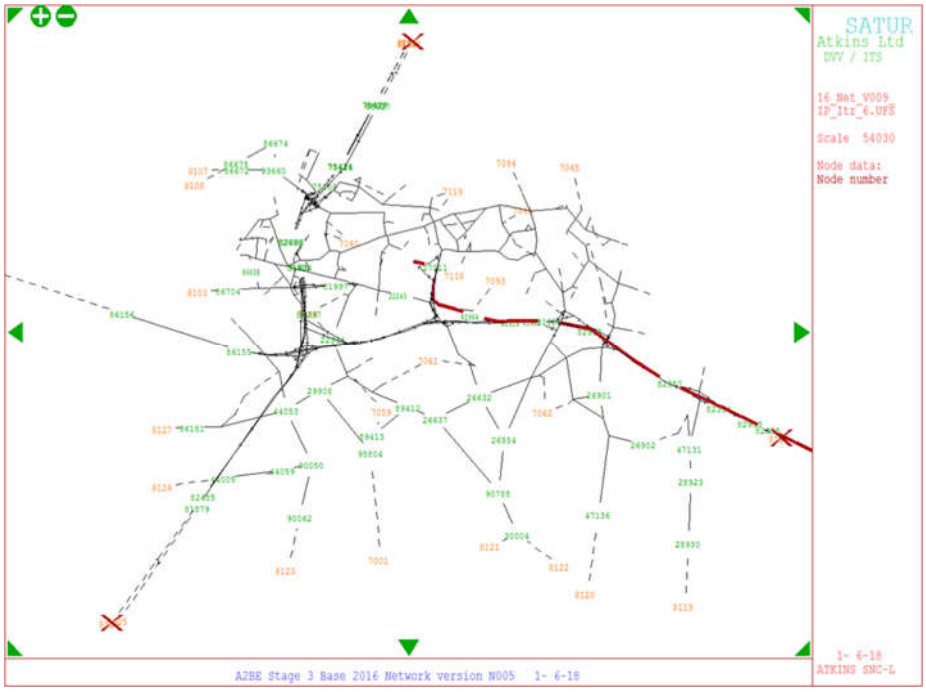


Figure B. 27 Hall road, Northfleet to Bluewater Shopping Centre

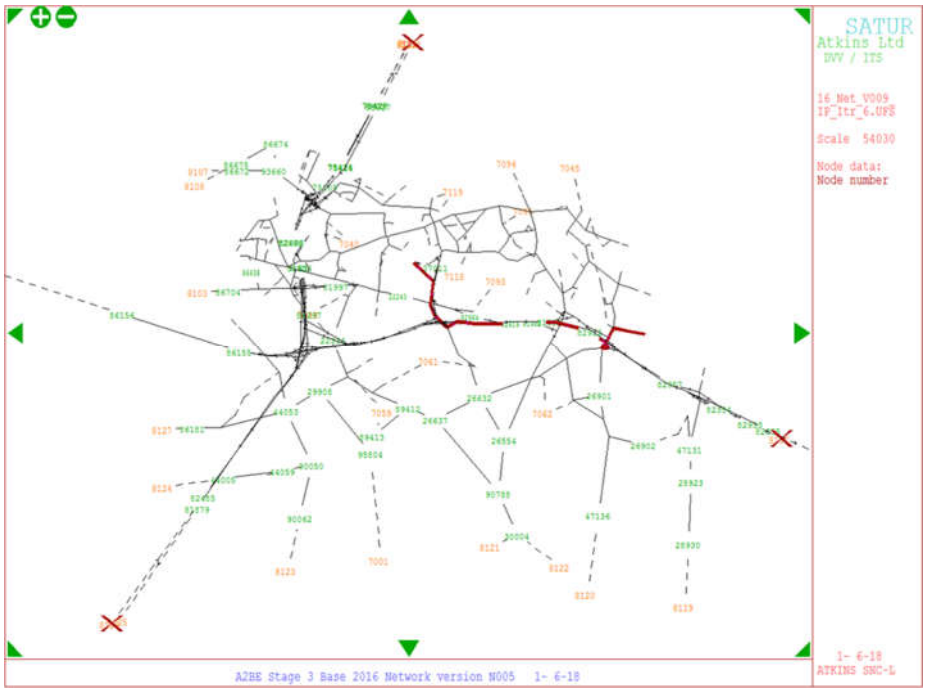
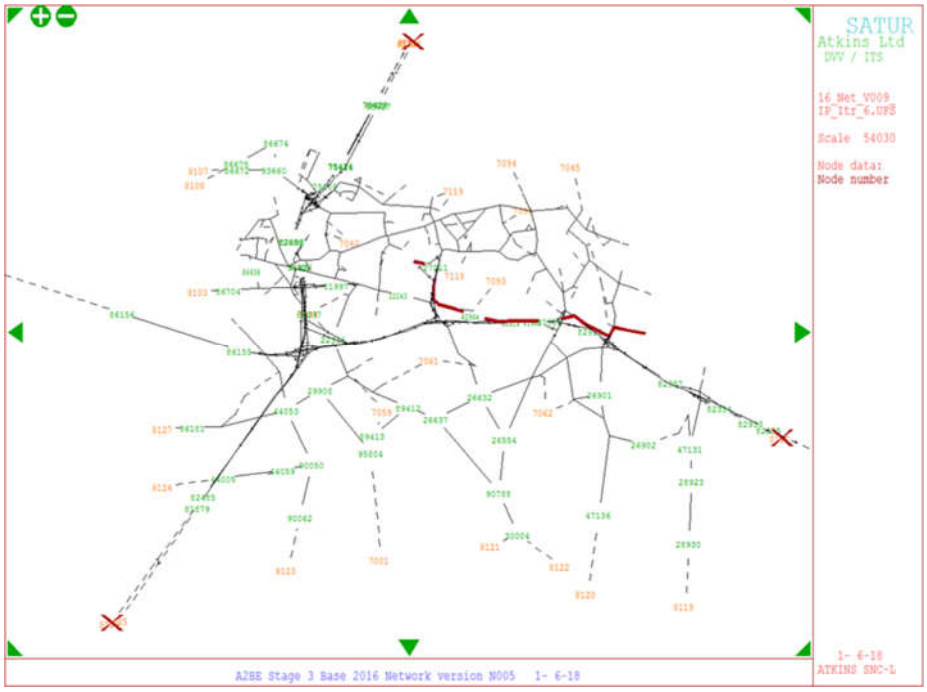


Figure B. 28 Bluewater Shopping Centre to Hall road, Northfleet



B.3 Route Choice Validation – PM Peak

Figure B. 29 Longfield to Greenhithe

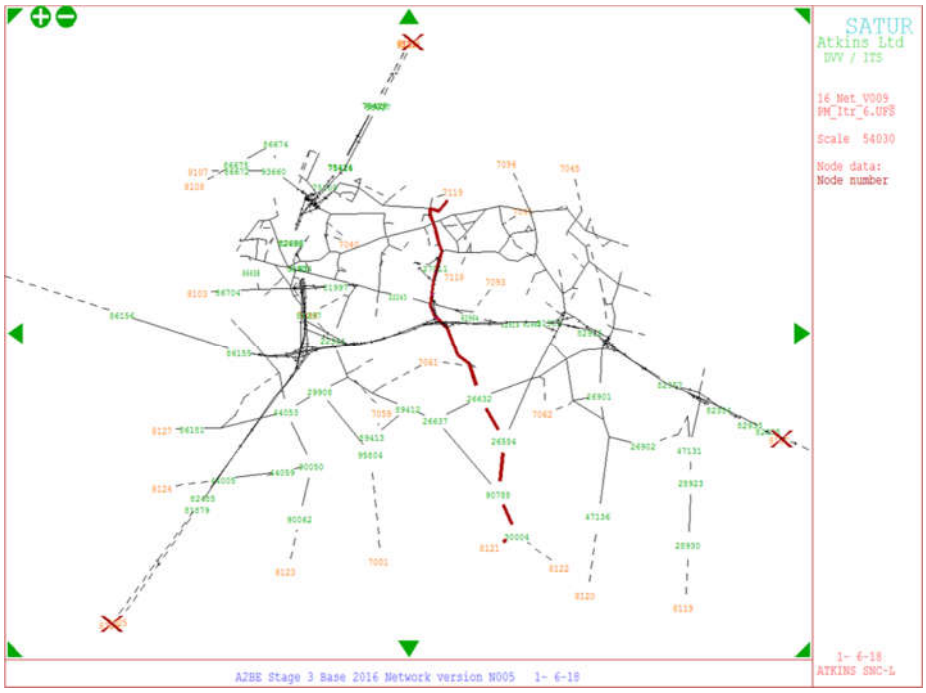


Figure B. 30 Greenhithe to Longfield

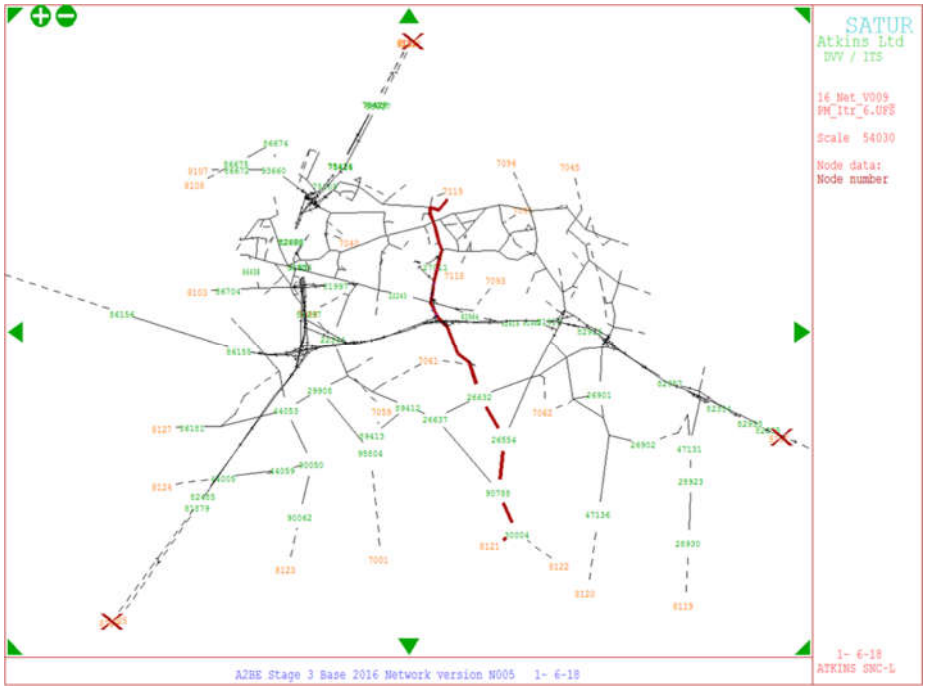


Figure B. 31 Longfield to Princes Road, A225

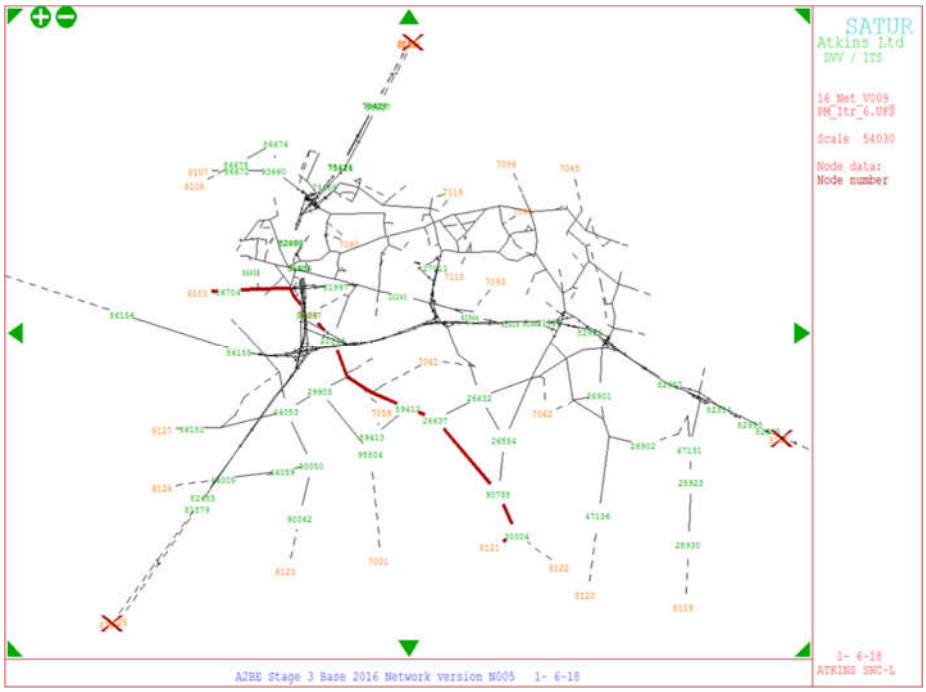


Figure B. 32 Princes Road, A225 to Longfield

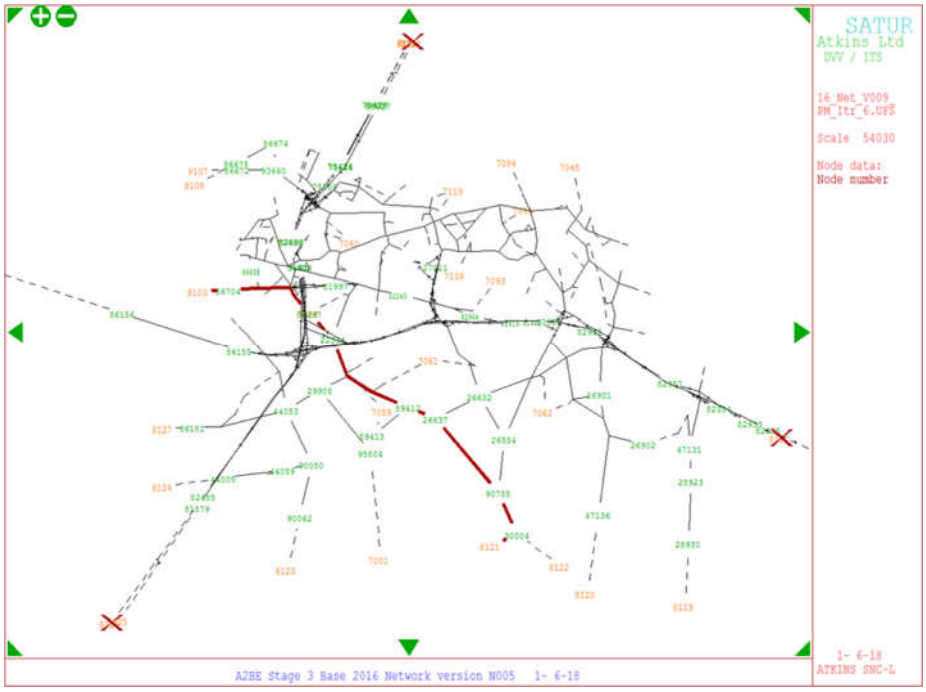


Figure B. 33 Swanscombe to A2 West

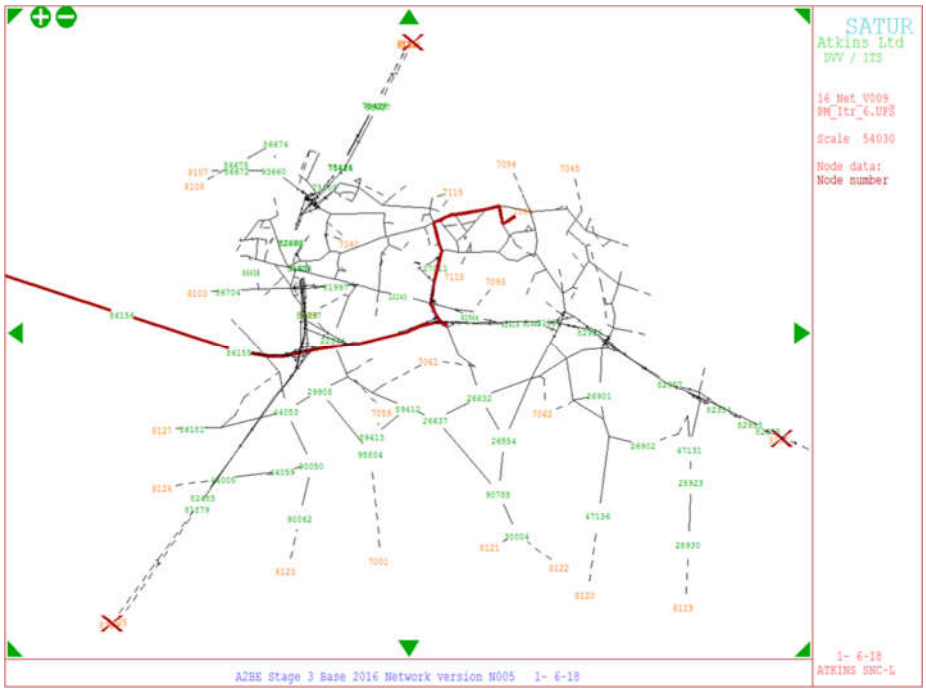


Figure B. 34 A2 West to Swanscombe

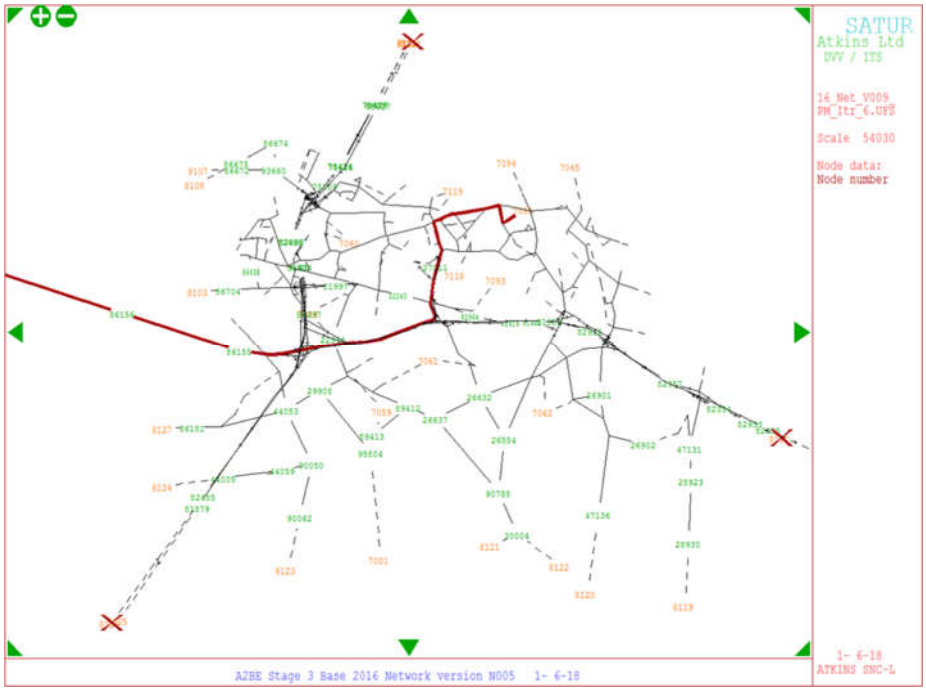


Figure B. 35 Swanscombe to Crossways Business Park

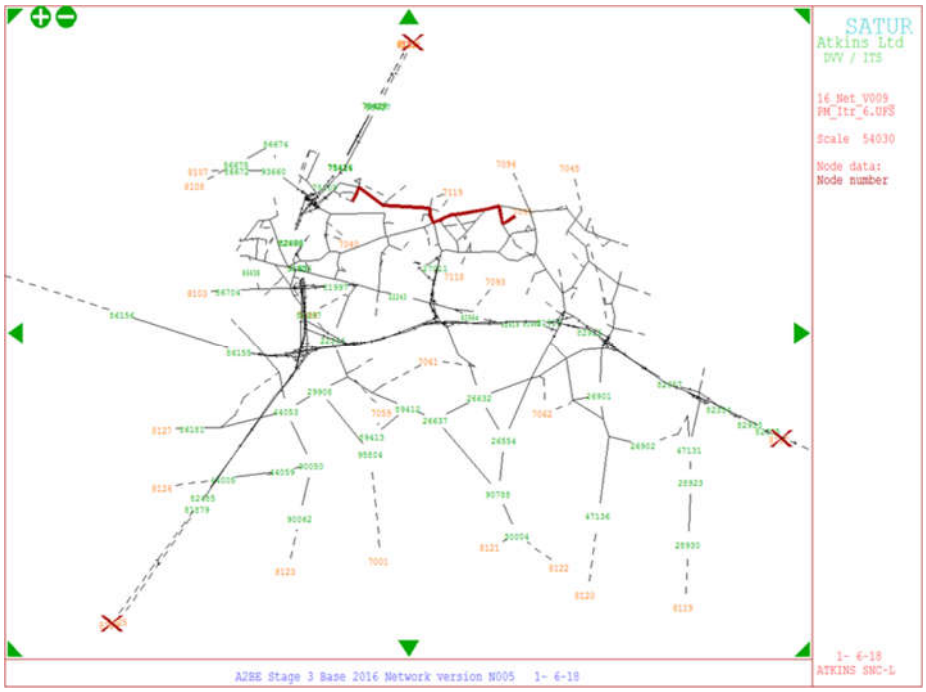


Figure B. 36 Crossways Business Park to Swanscombe

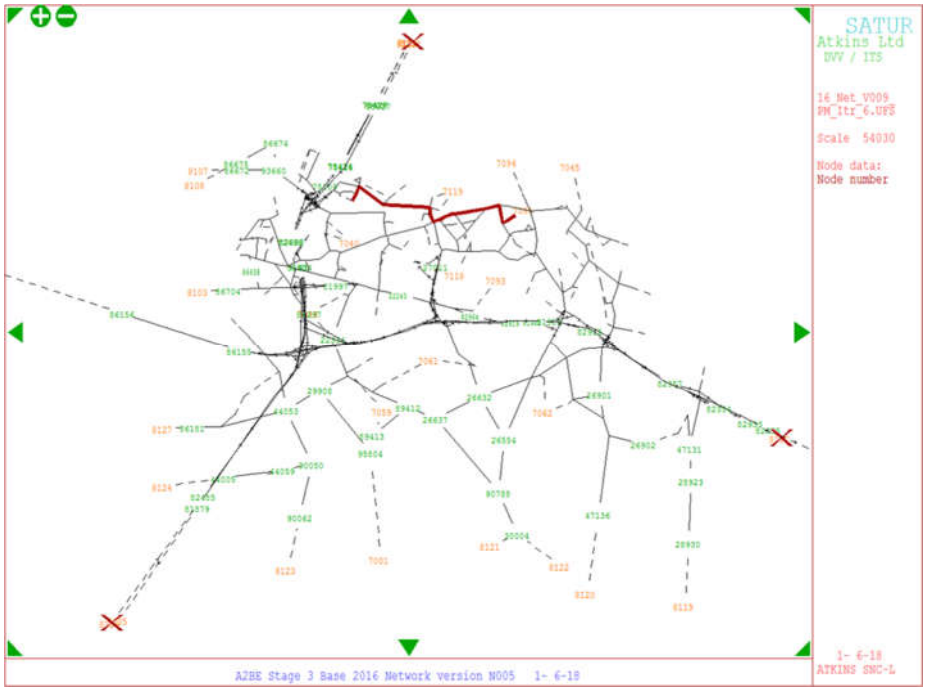


Figure B. 37 M25 South to Bluewater Shopping Centre

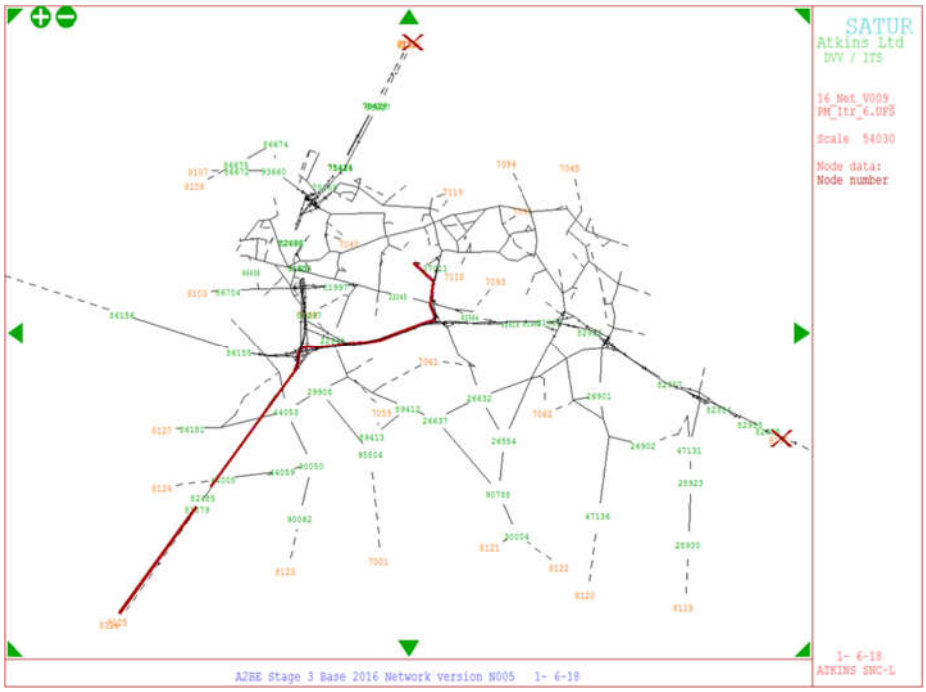


Figure B. 38 Bluewater Shopping Centre to M25 South

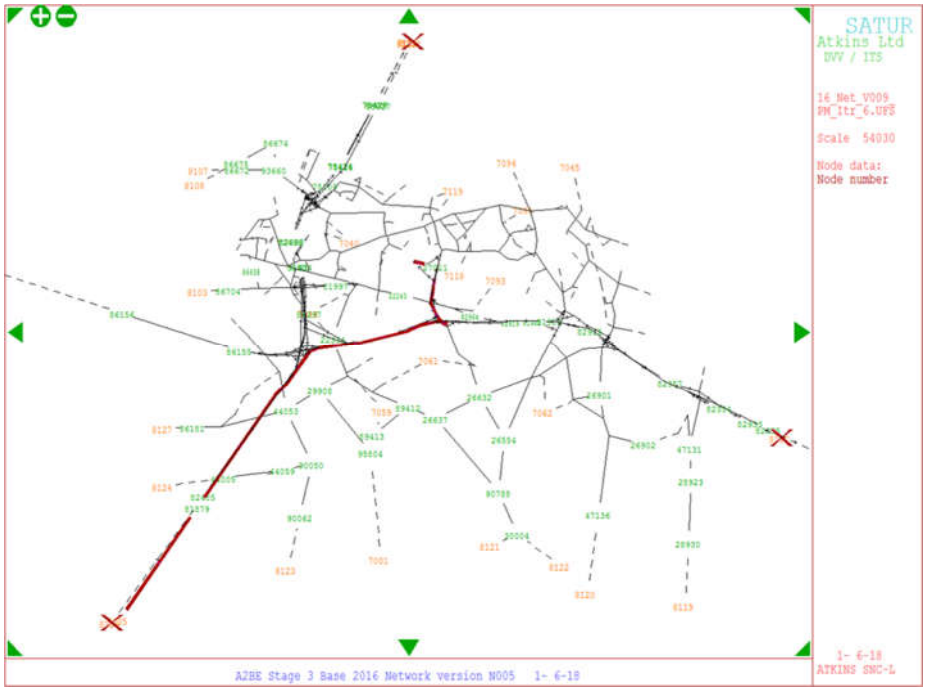


Figure B. 39 A2 East to Bluewater Shopping Centre

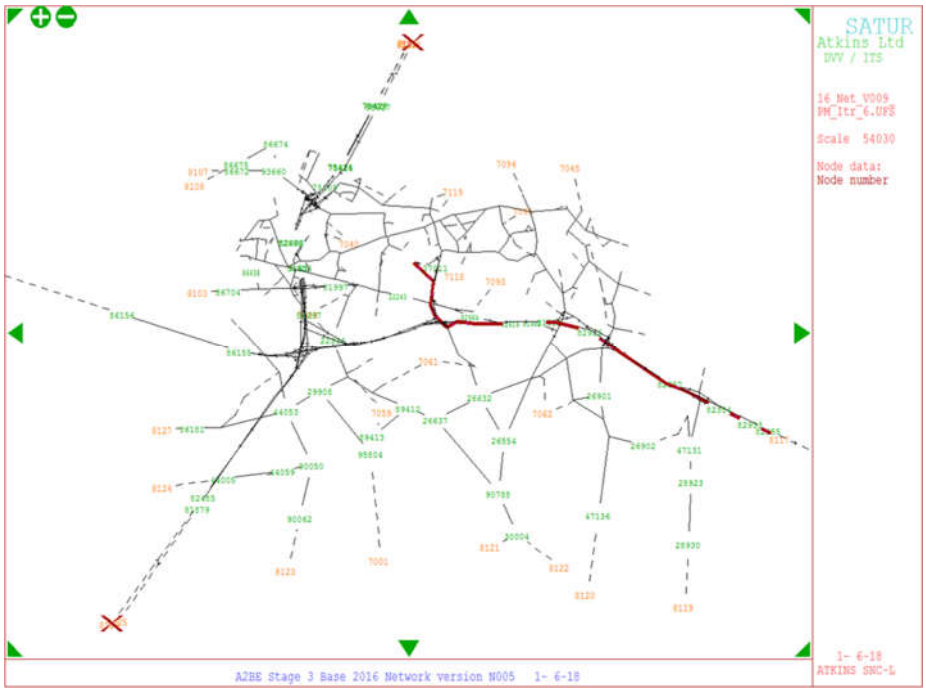


Figure B. 40 Bluewater Shopping Centre to A2 East

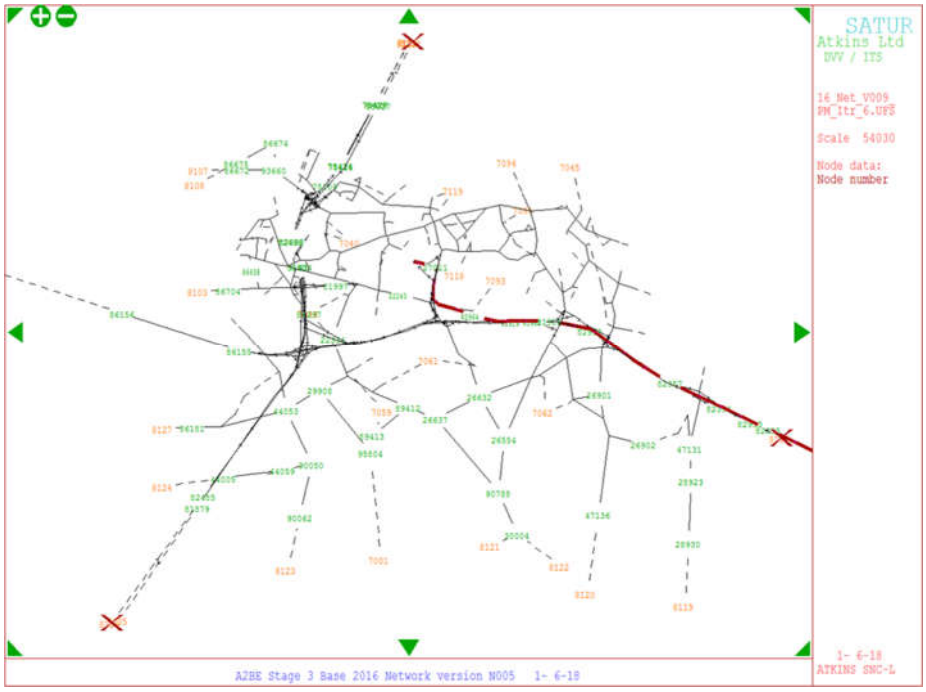


Figure B. 41 Hall road, Northfleet to Bluewater Shopping Centre

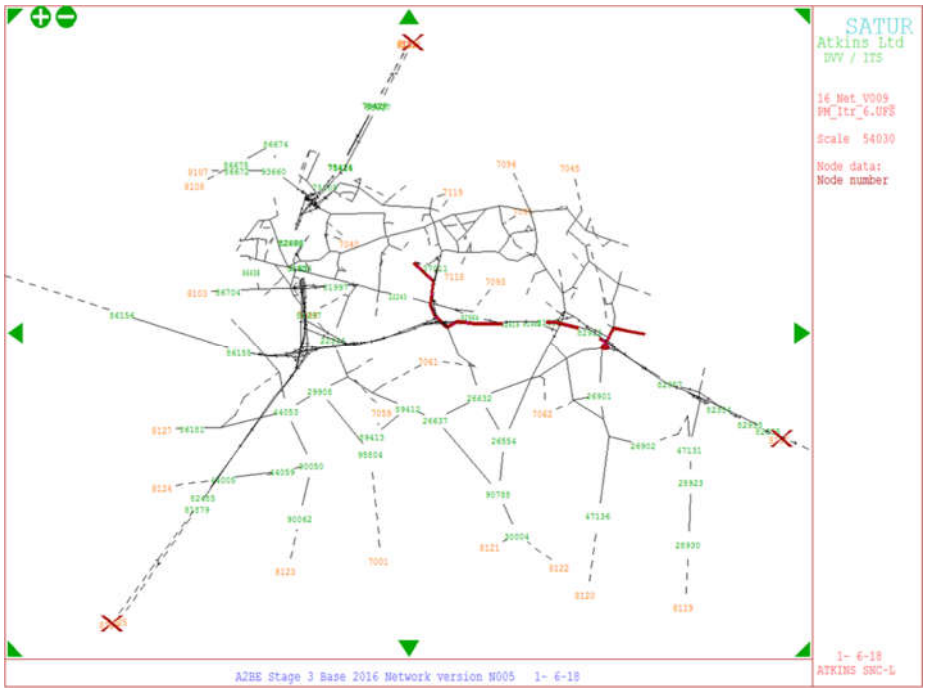
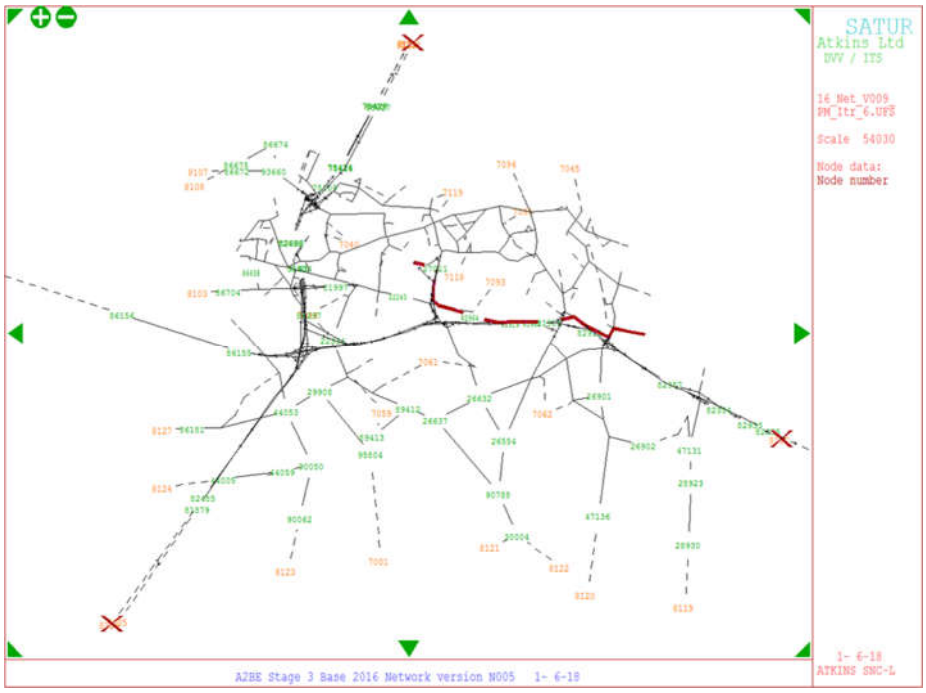


Figure B. 42 Bluewater Shopping Centre to Hall road, Northfleet



Appendix C. Link Flow Calibration

C.1 Link Flow Calibration across Screenlines – AM Peak

Table C. 1 Screenline Totals

Screenline	Dir	Cars only					Total (in vehicles)				
		Count	Model	Diff	% Diff	WebTAG Flow	Count	Model	Diff	% Diff	WebTAG Flow
Screenline 1	EB	4210	4,163	-47	-1%	✓	5,796	5,772	-24	0%	✓
	WB	6869	6,912	43	1%	✓	9,211	9,297	86	1%	✓
Screenline 2	EB	3991	3,990	-1	0%	✓	5,540	5,572	32	1%	✓
	WB	6790	6,757	-33	0%	✓	8,998	8,951	-47	-1%	✓
Screenline 3	EB	3303	3,291	-13	0%	✓	4,782	4,627	-155	-3%	✓
	WB	5409	5,887	479	9%	×	7,459	7,921	463	6%	×
Screenline 4	EB	3415	3,398	-17	0%	✓	4,754	4,768	14	0%	✓
	WB	5694	5,968	274	5%	✓	7,705	7,970	265	3%	✓
Screenline 5	NB	5352	5,374	22	0%	✓	7,353	7,349	-4	0%	✓
	SB	4811	4,811	0	0%	✓	7,430	7,444	14	0%	✓
Screenline 6	NB	3555	3,494	-61	-2%	✓	4,393	4,383	-10	0%	✓
	SB	3073	3,126	52	2%	✓	4,031	4,089	59	1%	✓

Table C. 2 Screenline No.1

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
Ship Lane	EB	44005-44059	16	16	0	2%	0.1	✓	✓	21	22	1	5%	0.2	✓	✓
Clement Street	EB	44077-44053	46	46	0	1%	0.0	✓	✓	56	61	5	9%	0.7	✓	✓
A225 Hawley Road	EB	26013-44053	269	269	0	0%	0.0	✓	✓	338	336	-1	0%	0.1	✓	✓
A2 eastbound after M25 J2 roundabout access	EB	81623-82340	2,046	2,046	0	0%	0.0	✓	✓	2,728	2,729	0	0%	0.0	✓	✓
link road from M25 J2 clockwise to A2 eastbound	EB	82209-81689	764	764	0	0%	0.0	✓	✓	1,269	1,302	33	3%	0.9	✓	✓
B260 Trolling Down Hill	EB	86297-22334	212	212	0	0%	0.0	✓	✓	267	266	0	0%	0.0	✓	✓
A296 / B2500 / Gore Road Round	EB	81997-22340	299	299	0	0%	0.0	✓	✓	359	401	42	12%	2.2	✓	✓
B2500 Watling Street	EB	22346-22347	189	189	0	0%	0.0	✓	✓	236	238	2	1%	0.1	✓	✓
A226 The Brent	EB	27431-27432	263	215	-48	-18%	3.1	✓	✓	348	242	-106	-30%	6.2	×	×
A206 / B3228 East Roundabout	EB	81993-82006	107	107	0	0%	0.0	✓	✓	175	175	0	0%	0.0	✓	✓
Ship Lane	WB	44059-44005	29	29	0	-1%		✓		37	39	1	4%		✓	
Clement Street	WB	44053-44077	57	74	17	30%		✓		70	107	37	53%		✓	

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A225 Hawley Road	WB	44053-26013	415	415	0	0%	0.0	✓	✓	498	495	-3	-1%	0.1	✓	✓
link road from A2 westbound to M25 J2 anti-clockwise	WB	81649-81888	952	957	6	1%	0.2	✓	✓	1,535	1,533	-2	0%	0.1	✓	✓
A2 westbound before M25 J2 roundabout exit	WB	81649-81625	3,659	3,681	22	1%	0.4	✓	✓	4,845	4,854	9	0%	0.1	✓	✓
B260 Trolling Down Hill	WB	22334-86297	422	422	0	0%	0.0	✓	✓	530	529	0	0%	0.0	✓	✓
A296 / B2500 / Gore Road Round	WB	22340-81997	341	340	-1	0%	0.1	✓	✓	447	479	33	7%	1.5	✓	✓
B2500 Watling Street	WB	22347-22346	339	338	-1	0%	0.1	✓	✓	392	403	11	3%	0.5	✓	✓
A226 The Brent	WB	27432-27431	362	362	1	0%	0.0	✓	✓	479	479	1	0%	0.0	✓	✓
A206 / B3228 East Roundabout	WB	82006-81991	293	293	0	0%	0.0	✓	✓	379	378	0	0%	0.0	✓	✓
Screenline 1 EB Summary	EB	-	4,210	4,163	-47	-1%		✓		5,796	5,772	-24	0%		✓	
Screenline 1 WB Summary	WB	-	6,869	6,912	43	1%		✓		9,211	9,297	86	1%		✓	

Table C. 3 Screenline No.2

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
B260 Green St Green Rd (East of Ladywood Rd)	EB	47126-89412	215	215	0	0%	0.0	✓	✓	270	272	2	1%	0.1	✓	✓
A2 eastbound between B255 and M25xA282	EB	82526-81890	2,810	2,810	0	0%	0.0	✓	✓	3,997	4,030	33	1%	0.5	✓	✓
A296 Watling Street (east of Gore Road)	EB	22338-27506	511	511	0	0%	0.0	✓	✓	676	677	0	0%	0.0	✓	✓
A226 London Road (West of Oak Road)	EB	22322-27505	174	174	-1	0%	0.1	✓	✓	231	221	-9	-4%	0.6	✓	✓
Elizabeth Street	EB	27411-22308	12	12	0	-3%	0.1	✓	✓	15	15	0	-2%	0.1	✓	✓
A206 Crossway Boulevard, 180m west of Asda Superstore Access	EB	27007-27009	268	268	0	0%	0.0	✓	✓	351	357	6	2%	0.3	✓	✓
B260 Green St Green Rd (East of Ladywood Rd)	WB	89412-47126	420	420	0	0%	0.0	✓	✓	528	512	-15	-3%	0.7	✓	✓
A2 westbound between B255 and M25xA282	WB	82921-82524	4,662	4,639	-23	0%	0.3	✓	✓	6,363	6,387	23	0%	0.3	✓	✓
A296 Watling Street (east of Gore Road)	WB	27506-22338	595	584	-10	-2%	0.4	✓	✓	786	754	-32	-4%	1.2	✓	✓
A226 London Road (West of Oak Road)	WB	27505-22322	356	356	0	0%	0.0	✓	✓	471	445	-26	-5%	1.2	✓	✓
Elizabeth Street	WB	22308-27411	40	40	0	0%	0.0	✓	✓	49	50	1	2%	0.1	✓	✓
A206 Crossway Boulevard, 180m west of Asda Superstore Access	WB	27009-27007	718	718	0	0%	0.0	✓	✓	801	803	2	0%	0.1	✓	✓
Screenline 2 EB Summary	EB	-	3,991	3,990	-1	0%		✓		5,540	5,572	32	1%		✓	
Screenline 2 WB Summary	WB	-	6,790	6,757	-33	0%		✓		8,998	8,951	-47	-1%		✓	

Table C. 4 Screenline No.3

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
B255 Highcross Road	EB	26632-26554	68	66	-2	-3%	0.2	✓	✓	85	84	-1	-2%	0.1	✓	✓
B262 Betsham Road	EB	26632-47128	47	47	0	0%	0.0	✓	✓	59	59	0	0%	0.0	✓	✓
A2 eastbound between B255 and B259	EB	82922-81984	2,846	2,869	23	1%	0.4	✓	✓	4,191	4,075	-116	-3%	1.8	✓	✓
Alkerden Lane (west of Gilbert Close)	EB	89440-20231	55	22	-33	-61%	5.4	✓	×	66	29	-37	-56%	5.4	✓	×
A226 London Road (east of Knockhall Road)	EB	20126-20119	287	287	0	0%	0.0	✓	✓	381	381	-1	0%	0.0	✓	✓
B255 Highcross Road	WB	26554-26632	124	136	12	10%	1.1	✓	✓	155	168	13	8%	1.0	✓	✓
B262 Betsham Road	WB	47128-26632	156	127	-29	-19%	2.5	✓	✓	196	166	-30	-15%	2.2	✓	✓
A2 westbound within the B255 junction	WB	81917-81889	3,825	4,172	346	9%	5.5	✓	×	5,326	5,777	451	8%	6.1	×	×
A2 westbound exit for B255	WB	81917-82952	783	932	149	19%	5.1	×	×	1,086	1,119	33	3%	1.0	✓	✓
Alkerden Lane (west of Gilbert Close)	WB	20231-89440	121	121	0	0%	0.0	✓	✓	146	147	1	1%	0.1	✓	✓
A226 London Road (east of Knockhall Road)	WB	20119-20126	400	400	0	0%	0.0	✓	✓	550	544	-6	-1%	0.3	✓	✓
Screenline 3 EB Summary	EB	-	3,303	3,291	-13	0%		✓		4,782	4,627	-155	-3%		✓	
Screenline 3 WB Summary	WB	-	5,409	5,887	479	9%		×		7,459	7,921	463	6%		×	

Table C. 5 Screenline No.4

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
B262 Station Road	EB	26896-26019	155	155	0	0%	0.0	✓	✓	195	194	-1	0%	0.0	✓	✓
A2 eastbound within the B259 junction	EB	81984-81980	2,280	2,276	-5	0%	0.1	✓	✓	3,300	3,332	32	1%	0.6	✓	✓
A2 EB exit / B259 Roundabout	EB	81708-81981	507	495	-11	-2%	0.5	✓	✓	666	654	-11	-2%	0.4	✓	✓
A226 Thames Way	EB	98579-28512	130	130	0	0%	0.0	✓	✓	164	158	-6	-3%	0.4	✓	✓
B2175 The Hill Northfleet S of Vicarage Drive	EB	89433-23165	342	342	0	0%	0.0	✓	✓	430	429	0	0%	0.0	✓	✓
B262 Station Road	WB	26019-26896	244	215	-29	-12%	1.9	✓	✓	306	281	-26	-8%	1.5	✓	✓
A2 westbound between A2260 and B259	WB	82915-81983	4,897	5,199	302	6%	4.3	✓	✓	6,705	6,986	282	4%	3.4	✓	✓
A226 Thames Way	WB	28512-98579	377	377	0	0%	0.0	✓	✓	473	471	-2	0%	0.1	✓	✓
B2175 The Hill Northfleet S of Vicarage Drive	WB	23165-89433	176	176	0	0%	0.0	✓	✓	221	233	12	5%	0.8	✓	✓
Screenline 4 EB Summary	EB	-	3,415	3,398	-17	0%		✓		4,754	4,768	14	0%		✓	
Screenline 4 WB Summary	WB	-	5,694	5,968	274	5%		✓		7,705	7,970	265	3%		✓	

Table C. 6 Screenline No.5

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A227 Wrotham Road	NB	28930-28923	420	420	0	0%	0.0	✓	✓	505	505	0	0%	0.0	✓	✓
New Barn Road	NB	47136-26899	326	326	0	0%	0.0	✓	✓	400	401	1	0%	0.0	✓	✓
B255 Whitehill Road	NB	90788-26554	192	214	22	12%	1.6	✓	✓	241	264	23	9%	1.4	✓	✓
B260 Main Road	NB	90788-26637	407	407	0	0%	0.0	✓	✓	509	483	-26	-5%	1.2	✓	✓
A225 Main Road	NB	90062-90050	327	327	0	0%	0.0	✓	✓	397	396	-1	0%	0.0	✓	✓
M25 anti-clockwise between J3 and J2	NB	82485-81886	3,680	3,680	0	0%	0.0	✓	✓	5,301	5,301	0	0%	0.0	✓	✓
A227 Wrotham Road	SB	28923-28930	327	327	0	0%	0.0	✓	✓	420	421	1	0%	0.0	✓	✓
New Barn Road	SB	26899-47136	237	237	0	0%	0.0	✓	✓	291	308	17	6%	1.0	✓	✓
B255 Whitehill Road	SB	26554-90788	135	135	0	0%	0.0	✓	✓	170	175	5	3%	0.4	✓	✓
B260 Main Road	SB	26637-90788	201	201	0	0%	0.0	✓	✓	263	253	-9	-4%	0.6	✓	✓
A225 Main Road	SB	90050-90062	360	360	0	0%	0.0	✓	✓	477	477	0	0%	0.0	✓	✓
M25 clockwise between J2 and J3	SB	82483-81879	3,551	3,551	0	0%	0.0	✓	✓	5,810	5,810	0	0%	0.0	✓	✓
Screenline 5 NB Summary	NB	-	5,352	5,374	22	0%		✓		7,353	7,349	-4	0%		✓	
Screenline 5 SB Summary	SB	-	4,811	4,811	0	0%		✓		7,430	7,444	14	0%		✓	

Table C. 7 Screenline No.6

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A227 Wrotham Road	NB	81896-20202	614	614	0	0%	0.0	✓	✓	812	812	0	0%	0.0	✓	✓
B262 Hall Road	NB	83355-28510	725	809	85	12%	3.1	✓	✓	910	1,014	104	11%	3.3	✓	✓
A2260 Southfleet Road North of A2 NW Rbt	NB	81985-23185	605	605	0	0%	0.0	✓	✓	739	742	3	0%	0.1	✓	✓
A2 / B255 Bean North Roundabout	NB	82953-83357	1,271	1,126	-145	-11%	4.2	✓	✓	1,470	1,335	-136	-9%	3.6	✓	✓
A2 eastbound exit for B255	NB	81890-82960	340	340	0	0%	0.0	✓	✓	461	480	19	4%	0.9	✓	✓
A227 Wrotham Road	SB	20202-81896	888	888	0	0%	0.0	✓	✓	1,175	1,174	0	0%	0.0	✓	✓
B262 Hall Road	SB	28510-83355	1,025	996	-29	-3%	0.9	✓	✓	1,287	1,263	-24	-2%	0.7	✓	✓
A2260 Southfleet Road North of A2 NW Rbt	SB	23185-81985	344	422	78	23%	4.0	✓	✓	494	580	87	18%	3.7	✓	✓
A296 Roman Road	SB	27035-82964	399	399	0	0%	0.0	✓	✓	528	525	-3	-1%	0.1	✓	✓
A2 / B255 Bean North Roundabout	SB	83357-82953	417	421	4	1%	0.2	✓	✓	547	546	-1	0%	0.0	✓	✓
Screenline 6 NB Summary	NB	-	3,555	3,494	-61	-2%		✓		4,393	4,383	-10	0%		✓	
Screenline 6 SB Summary	SB	-	3,073	3,126	52	2%		✓		4,031	4,089	59	1%		✓	

C.2 Link Flow Calibration across Screenlines – Inter Peak

Table C. 8 Screenline Totals

Screenline	Dir	Cars only					Total (in vehicles)				
		Count	Model	Diff	% Diff	WebTAG Flow	Count	Model	Diff	% Diff	WebTAG Flow
Screenline 1	EB	4540	4,481	-59	-1%	✓	6,154	6,068	-86	-1%	✓
	WB	4344	4,305	-38	-1%	✓	5,978	5,948	-30	0%	✓
Screenline 2	EB	4395	4,402	7	0%	✓	6,008	6,007	-2	0%	✓
	WB	4238	4,227	-11	0%	✓	5,816	5,797	-19	0%	✓
Screenline 3	EB	3251	3,217	-35	-1%	✓	4,723	4,545	-177	-4%	✓
	WB	3389	3,586	197	6%	×	4,790	4,988	198	4%	✓
Screenline 4	EB	3427	3,466	39	1%	✓	4,725	4,761	36	1%	✓
	WB	3703	3,764	60	2%	✓	5,160	5,172	13	0%	✓
Screenline 5	NB	3847	3,872	24	1%	✓	5,808	5,816	9	0%	✓
	SB	3737	3,757	19	1%	✓	5,392	5,425	33	1%	✓
Screenline 6	NB	3578	3,774	196	5%	×	4,463	4,680	216	5%	✓
	SB	3267	3,326	59	2%	✓	4,150	4,151	1	0%	✓

Table C. 9 Screenline No.1

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
Ship Lane	EB	44005-44059	30	30	0	0%	0.0	✓	✓	38	39	0	1%	0.1	✓	✓
Clement Street	EB	44077-44053	54	54	0	-1%	0.1	✓	✓	66	75	8	12%	1.0	✓	✓
A225 Hawley Road	EB	26013-44053	324	324	0	0%	0.0	✓	✓	383	376	-7	-2%	0.3	✓	✓
A2 eastbound after M25 J2 roundabout access	EB	81623-82340	2,109	2,110	0	0%	0.0	✓	✓	2,832	2,831	-1	0%	0.0	✓	✓
link road from M25 J2 clockwise to A2 eastbound	EB	82209-81689	653	653	0	0%	0.0	✓	✓	1,112	1,113	1	0%	0.0	✓	✓
B260 Trolling Down Hill	EB	86297-22334	241	241	0	0%	0.0	✓	✓	294	287	-7	-3%	0.4	✓	✓
A296 / B2500 / Gore Road Round	EB	81997-22340	372	369	-3	-1%	0.2	✓	✓	461	466	5	1%	0.3	✓	✓
B2500 Watling Street	EB	22346-22347	273	273	0	0%	0.0	✓	✓	327	342	16	5%	0.9	✓	✓
A226 The Brent	EB	27431-27432	343	287	-56	-16%	3.2	✓	✓	454	352	-102	-22%	5.1	×	×
A206 / B3228 East Roundabout	EB	81993-82006	141	141	0	0%	0.0	✓	✓	186	187	1	1%	0.1	✓	✓
Ship Lane	WB	44059-44005	27	27	0	1%	0.0	✓	✓	35	36	1	4%	0.2	✓	✓
Clement Street	WB	44053-44077	45	45	0	0%		✓		55	72	17	32%		✓	
A225 Hawley Road	WB	44053-26013	306	306	0	0%		✓		374	374	0	0%		✓	

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
link road from A2 westbound to M25 J2 anti-clockwise	WB	81649-81888	650	654	4	1%	0.1	✓	✓	1,192	1,189	-3	0%	0.1	✓	✓
A2 westbound before M25 J2 roundabout exit	WB	81649-81625	1,962	1,973	12	1%	0.3	✓	✓	2,617	2,617	0	0%	0.0	✓	✓
B260 Trolling Down Hill	WB	22334-86297	270	270	0	0%	0.0	✓	✓	330	333	3	1%	0.2	✓	✓
A296 / B2500 / Gore Road Round	WB	22340-81997	307	257	-50	-16%	3.0	✓	✓	378	333	-45	-12%	2.4	✓	✓
B2500 Watling Street	WB	22347-22346	260	258	-1	-1%	0.1	✓	✓	308	307	-1	0%	0.1	✓	✓
A226 The Brent	WB	27432-27431	352	354	1	0%	0.1	✓	✓	467	467	1	0%	0.0	✓	✓
A206 / B3228 East Roundabout	WB	82006-81991	164	161	-3	-2%	0.2	✓	✓	222	219	-3	-1%	0.2	✓	✓
Screenline 1 EB Summary	EB	-	4,540	4,481	-59	-1%		✓		6,154	6,068	-86	-1%		✓	
Screenline 1 WB Summary	WB	-	4,344	4,305	-38	-1%		✓		5,978	5,948	-30	0%		✓	

Table C. 10 Screenline No.2

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
B260 Green St Green Rd (East of Ladywood Rd)	EB	47126-89412	270	267	-3	-1%	0.2	✓	✓	330	338	8	3%	0.5	✓	✓
A2 eastbound between B255 and M25xA282	EB	82526-81890	2,763	2,763	0	0%	0.0	✓	✓	3,944	3,944	0	0%	0.0	✓	✓
A296 Watling Street (east of Gore Road)	EB	22338-27506	595	597	1	0%	0.0	✓	✓	788	762	-26	-3%	0.9	✓	✓
A226 London Road (West of Oak Road)	EB	22322-27505	282	284	2	1%	0.1	✓	✓	374	376	2	0%	0.1	✓	✓
Elizabeth Street	EB	27411-22308	10	17	7	77%	2.0	✓	✓	12	20	9	75%	2.2	✓	✓
A206 Crossway Boulevard, 180m west of Asda Superstore Access	EB	27007-27009	475	475	0	0%	0.0	✓	✓	561	567	6	1%	0.3	✓	✓
B260 Green St Green Rd (East of Ladywood Rd)	WB	89412-47126	282	272	-9	-3%	0.6	✓	✓	344	338	-6	-2%	0.3	✓	✓
A2 westbound between B255 and M25xA282	WB	82921-82524	2,643	2,627	-16	-1%	0.3	✓	✓	3,803	3,806	3	0%	0.0	✓	✓
A296 Watling Street (east of Gore Road)	WB	27506-22338	482	480	-2	0%	0.1	✓	✓	638	624	-14	-2%	0.6	✓	✓
A226 London Road (West of Oak Road)	WB	27505-22322	335	335	0	0%	0.0	✓	✓	444	424	-20	-4%	0.9	✓	✓
Elizabeth Street	WB	22308-27411	16	32	16	99%	3.2	✓	✓	20	37	18	90%	3.3	✓	✓
A206 Crossway Boulevard, 180m west of Asda Superstore Access	WB	27009-27007	480	480	0	0%	0.0	✓	✓	568	568	0	0%	0.0	✓	✓
Screenline 2 EB Summary	EB	-	4,395	4,402	7	0%		✓		6,008	6,007	-2	0%		✓	
Screenline 2 WB Summary	WB	-	4,238	4,227	-11	0%		✓		5,816	5,797	-19	0%		✓	

Table C. 11 Screenline No.3

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
B255 Highcross Road	EB	26632-26554	88	81	-7	-8%	0.7	✓	✓	107	101	-7	-6%	0.7	✓	✓
B262 Betsham Road	EB	26632-47128	74	84	10	14%	1.1	✓	✓	91	101	10	11%	1.1	✓	✓
A2 eastbound between B255 and B259	EB	82922-81984	2,701	2,704	3	0%	0.1	✓	✓	4,007	3,874	-134	-3%	2.1	✓	✓
Alkerden Lane (west of Gilbert Close)	EB	89440-20231	64	23	-41	-64%	6.2	✓	×	79	31	-48	-61%	6.4	✓	×
A226 London Road (east of Knockhall Road)	EB	20126-20119	324	324	0	0%	0.0	✓	✓	439	439	0	0%	0.0	✓	✓
B255 Highcross Road	WB	26554-26632	94	92	-2	-2%	0.2	✓	✓	115	111	-5	-4%	0.4	✓	✓
B262 Betsham Road	WB	47128-26632	71	71	0	0%	0.0	✓	✓	86	87	0	0%	0.0	✓	✓
A2 westbound within the B255 junction	WB	81917-81889	2,022	2,034	12	1%	0.3	✓	✓	2,993	3,128	135	5%	2.4	✓	✓
A2 westbound exit for B255	WB	81917-82952	756	944	188	25%	6.4	×	×	1,016	1,090	75	7%	2.3	✓	✓
Alkerden Lane (west of Gilbert Close)	WB	20231-89440	81	81	0	0%	0.0	✓	✓	94	94	0	0%	0.0	✓	✓
A226 London Road (east of Knockhall Road)	WB	20119-20126	364	364	0	0%	0.0	✓	✓	486	478	-8	-2%	0.4	✓	✓
Screenline 3 EB Summary	EB	-	3,251	3,217	-35	-1%		✓		4,723	4,545	-177	-4%		✓	
Screenline 3 WB Summary	WB	-	3,389	3,586	197	6%		×		4,790	4,988	198	4%		✓	

Table C. 12 Screenline No.4

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
B262 Station Road	EB	26896-26019	214	275	61	28%	3.9	✓	✓	261	320	60	23%	3.5	✓	✓
A2 eastbound within the B259 junction	EB	81984-81980	2,179	2,179	1	0%	0.0	✓	✓	3,163	3,163	0	0%	0.0	✓	✓
A2 EB exit / B259 Roundabout	EB	81708-81981	548	538	-10	-2%	0.4	✓	✓	707	698	-9	-1%	0.4	✓	✓
A226 Thames Way	EB	98579-28512	158	144	-13	-8%	1.1	✓	✓	192	177	-15	-8%	1.1	✓	✓
B2175 The Hill Northfleet S of Vicarage Drive	EB	89433-23165	330	330	0	0%	0.0	✓	✓	403	403	0	0%	0.0	✓	✓
B262 Station Road	WB	26019-26896	163	230	67	41%	4.8	✓	✓	199	268	69	34%	4.5	✓	✓
A2 westbound between A2260 and B259	WB	82915-81983	2,987	2,987	0	0%	0.0	✓	✓	4,286	4,247	-38	-1%	0.6	✓	✓
A226 Thames Way	WB	28512-98579	239	232	-6	-3%	0.4	✓	✓	291	274	-17	-6%	1.0	✓	✓
B2175 The Hill Northfleet S of Vicarage Drive	WB	23165-89433	314	314	0	0%	0.0	✓	✓	384	383	0	0%	0.0	✓	✓
Screenline 4 EB Summary	EB	-	3,427	3,466	39	1%		✓		4,725	4,761	36	1%		✓	
Screenline 4 WB Summary	WB	-	3,703	3,764	60	2%		✓		5,160	5,172	13	0%		✓	

Table C. 13 Screenline No.5

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A227 Wrotham Road	NB	28930-28923	355	355	0	0%	0.0	✓	✓	426	426	0	0%	0.0	✓	✓
New Barn Road	NB	47136-26899	291	296	4	2%	0.3	✓	✓	355	358	3	1%	0.1	✓	✓
B255 Whitehill Road	NB	90788-26554	160	177	17	11%	1.3	✓	✓	195	213	18	9%	1.3	✓	✓
B260 Main Road	NB	90788-26637	271	273	2	1%	0.1	✓	✓	342	331	-11	-3%	0.6	✓	✓
A225 Main Road	NB	90062-90050	294	294	0	0%	0.0	✓	✓	384	383	-2	0%	0.1	✓	✓
M25 anti-clockwise between J3 and J2	NB	82485-81886	2,477	2,477	0	0%	0.0	✓	✓	4,106	4,106	0	0%	0.0	✓	✓
A227 Wrotham Road	SB	28923-28930	327	327	0	0%	0.0	✓	✓	395	395	0	0%	0.0	✓	✓
New Barn Road	SB	26899-47136	276	292	16	6%	0.9	✓	✓	336	352	15	5%	0.8	✓	✓
B255 Whitehill Road	SB	26554-90788	152	152	0	0%	0.0	✓	✓	185	201	16	9%	1.2	✓	✓
B260 Main Road	SB	26637-90788	244	247	3	1%	0.2	✓	✓	313	314	1	0%	0.1	✓	✓
A225 Main Road	SB	90050-90062	263	263	0	0%	0.0	✓	✓	331	330	0	0%	0.0	✓	✓
M25 clockwise between J2 and J3	SB	82483-81879	2,476	2,476	0	0%	0.0	✓	✓	3,832	3,833	1	0%	0.0	✓	✓
Screenline 5 NB Summary	NB	-	3,847	3,872	24	1%		✓		5,808	5,816	9	0%		✓	
Screenline 5 SB Summary	SB	-	3,737	3,757	19	1%		✓		5,392	5,425	33	1%		✓	

Table C. 14 Screenline No.6

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A227 Wrotham Road	NB	81896-20202	716	716	0	0%	0.0	✓	✓	948	948	0	0%	0.0	✓	✓
B262 Hall Road	NB	83355-28510	806	930	124	15%	4.2	×	✓	984	1,120	136	14%	4.2	✓	✓
A2260 Southfleet Road North of A2 NW Rbt	NB	81985-23185	244	299	55	23%	3.3	✓	✓	367	444	77	21%	3.8	✓	✓
A2 / B255 Bean North Roundabout	NB	82953-83357	1,103	1,098	-5	0%	0.1	✓	✓	1,248	1,243	-5	0%	0.1	✓	✓
A2 eastbound exit for B255	NB	81890-82960	709	731	22	3%	0.8	✓	✓	916	925	9	1%	0.3	✓	✓
A227 Wrotham Road	SB	20202-81896	726	726	0	0%	0.0	✓	✓	962	962	0	0%	0.0	✓	✓
B262 Hall Road	SB	28510-83355	953	957	4	0%	0.1	✓	✓	1,163	1,144	-19	-2%	0.6	✓	✓
A2260 Southfleet Road North of A2 NW Rbt	SB	23185-81985	260	315	55	21%	3.2	✓	✓	381	435	53	14%	2.6	✓	✓
A296 Roman Road	SB	27035-82964	671	671	1	0%	0.0	✓	✓	888	855	-34	-4%	1.1	✓	✓
A2 / B255 Bean North Roundabout	SB	83357-82953	657	657	0	0%	0.0	✓	✓	756	756	0	0%	0.0	✓	✓
Screenline 6 NB Summary	NB	-	3,578	3,774	196	5%		×		4,463	4,680	216	5%		✓	
Screenline 6 SB Summary	SB	-	3,267	3,326	59	2%		✓		4,150	4,151	1	0%		✓	

C.3 Link Flow Calibration across Screenlines – PM Peak

Table C. 15 Screenline Totals

Screenline	Dir	Cars only					Total (in vehicles)				
		Count	Model	Diff	% Diff	WebTAG Flow	Count	Model	Diff	% Diff	WebTAG Flow
Screenline 1	EB	8479	8,344	-135	-2%	✓	10,289	10,089	-201	-2%	✓
	WB	6214	6,243	28	0%	✓	7,561	7,611	50	1%	✓
Screenline 2	EB	8342	8,352	10	0%	✓	10,088	10,075	-13	0%	✓
	WB	5757	5,507	-250	-4%	✓	6,978	6,686	-292	-4%	✓
Screenline 3	EB	7303	7,116	-187	-3%	✓	8,973	8,696	-277	-3%	✓
	WB	4474	4,716	242	5%	×	5,576	5,783	207	4%	✓
Screenline 4	EB	7616	7,579	-37	0%	✓	9,189	9,168	-21	0%	✓
	WB	4796	4,799	3	0%	✓	5,908	5,893	-15	0%	✓
Screenline 5	NB	5377	5,389	12	0%	✓	7,072	7,086	14	0%	✓
	SB	5932	5,955	23	0%	✓	7,246	7,266	20	0%	✓
Screenline 6	NB	4911	5,123	212	4%	✓	5,749	6,037	288	5%	×
	SB	5583	5,613	30	1%	✓	6,434	6,416	-18	0%	✓

Table C. 16 Screenline No.1

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
Ship Lane	EB	44005-44059	91	91	0	-1%	0.0	✓	✓	115	99	-16	-14%	1.6	✓	✓
Clement Street	EB	44077-44053	128	128	0	0%	0.0	✓	✓	147	155	8	6%	0.7	✓	✓
A225 Hawley Road	EB	26013-44053	494	494	0	0%	0.0	✓	✓	560	556	-5	-1%	0.2	✓	✓
A2 eastbound after M25 J2 roundabout access	EB	81623-82340	4,122	4,152	30	1%	0.5	✓	✓	4,943	4,973	30	1%	0.4	✓	✓
link road from M25 J2 clockwise to A2 eastbound	EB	82209-81689	1,450	1,468	18	1%	0.5	✓	✓	1,975	1,995	20	1%	0.4	✓	✓
B260 Trolling Down Hill	EB	86297-22334	417	417	1	0%	0.0	✓	✓	478	477	-1	0%	0.0	✓	✓
A296 / B2500 / Gore Road Round	EB	81997-22340	456	473	17	4%	0.8	✓	✓	533	553	20	4%	0.8	✓	✓
B2500 Watling Street	EB	22346-22347	521	497	-24	-5%	1.1	✓	✓	588	565	-23	-4%	1.0	✓	✓
A226 The Brent	EB	27431-27432	619	447	-172	-28%	7.4	×	×	737	506	-231	-31%	9.3	×	×
A206 / B3228 East Roundabout	EB	81993-82006	181	176	-5	-3%	0.3	✓	✓	213	210	-3	-1%	0.2	✓	✓
Ship Lane	WB	44059-44005	35	35	0	1%	0.1	✓	✓	44	46	1	3%	0.2	✓	✓
Clement Street	WB	44053-44077	74	74	0	0%	0.0	✓	✓	85	97	11	13%	1.2	✓	✓
A225 Hawley Road	WB	44053-26013	387	387	0	0%	0.0	✓	✓	463	462	-1	0%	0.1	✓	✓

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
link road from A2 westbound to M25 J2 anti-clockwise	WB	81649-81888	628	628	0	0%	0.0	✓	✓	955	958	3	0%	0.1	✓	✓
A2 westbound before M25 J2 roundabout exit	WB	81649-81625	3,008	3,022	13	0%	0.2	✓	✓	3,584	3,568	-16	0%	0.3	✓	✓
B260 Trolling Down Hill	WB	22334-86297	420	420	0	0%	0.0	✓	✓	482	483	1	0%	0.0	✓	✓
A296 / B2500 / Gore Road Round	WB	22340-81997	534	550	15	3%	0.7	✓	✓	593	665	71	12%	2.8	✓	✓
B2500 Watling Street	WB	22347-22346	364	352	-12	-3%	0.7	✓	✓	448	414	-34	-8%	1.6	✓	✓
A226 The Brent	WB	27432-27431	492	502	10	2%	0.4	✓	✓	587	597	10	2%	0.4	✓	✓
A206 / B3228 East Roundabout	WB	82006-81991	272	274	3	1%	0.2	✓	✓	320	323	4	1%	0.2	✓	✓
Screenline 1 EB Summary	EB	-	8,479	8,344	-135	-2%		✓		10,289	10,089	-201	-2%		✓	
Screenline 1 WB Summary	WB	-	6,214	6,243	28	0%		✓		7,561	7,611	50	1%		✓	

Table C. 17 Screenline No.2

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
B260 Green St Green Rd (East of Ladywood Rd)	EB	47126-89412	519	524	5	1%	0.2	✓	✓	596	598	3	0%	0.1	✓	✓
A2 eastbound between B255 and M25xA282	EB	82526-81890	5,571	5,618	47	1%	0.6	✓	✓	6,918	6,966	49	1%	0.6	✓	✓
A296 Watling Street (east of Gore Road)	EB	22338-27506	847	821	-26	-3%	0.9	✓	✓	1,010	973	-37	-4%	1.2	✓	✓
A226 London Road (West of Oak Road)	EB	22322-27505	506	511	5	1%	0.2	✓	✓	604	589	-14	-2%	0.6	✓	✓
Elizabeth Street	EB	27411-22308	24	23	-1	-4%	0.2	✓	✓	28	28	0	-1%	0.0	✓	✓
A206 Crossway Boulevard, 180m west of Asda Superstore Access	EB	27007-27009	873	855	-19	-2%	0.6	✓	✓	933	919	-13	-1%	0.4	✓	✓
B260 Green St Green Rd (East of Ladywood Rd)	WB	89412-47126	397	324	-74	-19%	3.9	✓	✓	456	373	-83	-18%	4.1	✓	✓
A2 westbound between B255 and M25xA282	WB	82921-82524	3,672	3,649	-22	-1%	0.4	✓	✓	4,543	4,525	-18	0%	0.3	✓	✓
A296 Watling Street (east of Gore Road)	WB	27506-22338	797	683	-114	-14%	4.2	✓	✓	950	808	-142	-15%	4.8	✓	✓
A226 London Road (West of Oak Road)	WB	27505-22322	445	443	-2	0%	0.1	✓	✓	530	516	-14	-3%	0.6	✓	✓
Elizabeth Street	WB	22308-27411	23	49	26	116%	4.4	✓	✓	26	55	29	112%	4.6	✓	✓
A206 Crossway Boulevard, 180m west of Asda Superstore Access	WB	27009-27007	423	360	-64	-15%	3.2	✓	✓	472	408	-64	-14%	3.1	✓	✓
Screenline 2 EB Summary	EB	-	8,342	8,352	10	0%		✓		10,088	10,075	-13	0%		✓	
Screenline 2 WB Summary	WB	-	5,757	5,507	-250	-4%		✓		6,978	6,686	-292	-4%		✓	

Table C. 18 Screenline No.3

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
B255 Highcross Road	EB	26632-26554	178	174	-4	-2%	0.3	✓	✓	205	203	-2	-1%	0.1	✓	✓
B262 Betsham Road	EB	26632-47128	293	300	7	3%	0.4	✓	✓	336	343	7	2%	0.4	✓	✓
A2 eastbound between B255 and B259	EB	82922-81984	6,113	6,028	-85	-1%	1.1	✓	✓	7,596	7,423	-173	-2%	2.0	✓	✓
Alkerden Lane (west of Gilbert Close)	EB	89440-20231	159	41	-118	-74%	11.8	×	×	193	57	-136	-71%	12.2	×	×
A226 London Road (east of Knockhall Road)	EB	20126-20119	559	572	13	2%	0.5	✓	✓	644	671	27	4%	1.1	✓	✓
B255 Highcross Road	WB	26554-26632	124	124	0	0%	0.0	✓	✓	142	142	1	0%	0.0	✓	✓
B262 Betsham Road	WB	47128-26632	79	79	0	0%	0.0	✓	✓	90	91	0	0%	0.0	✓	✓
A2 westbound within the B255 junction	WB	81917-81889	2,749	2,818	68	2%	1.3	✓	✓	3,484	3,608	124	4%	2.1	✓	✓
A2 westbound exit for B255	WB	81917-82952	906	1,080	174	19%	5.5	×	×	1,148	1,242	94	8%	2.7	✓	✓
Alkerden Lane (west of Gilbert Close)	WB	20231-89440	90	90	0	-1%	0.0	✓	✓	108	106	-2	-2%	0.2	✓	✓
A226 London Road (east of Knockhall Road)	WB	20119-20126	526	526	0	0%	0.0	✓	✓	603	593	-10	-2%	0.4	✓	✓
Screenline 3 EB Summary	EB	-	7,303	7,116	-187	-3%		✓		8,973	8,696	-277	-3%		✓	
Screenline 3 WB Summary	WB	-	4,474	4,716	242	5%		×		5,576	5,783	207	4%		✓	

Table C. 19 Screenline No.4

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
B262 Station Road	EB	26896-26019	515	513	-2	0%	0.1	✓	✓	591	595	5	1%	0.2	✓	✓
A2 eastbound within the B259 junction	EB	81984-81980	5,114	5,099	-15	0%	0.2	✓	✓	6,284	6,265	-19	0%	0.2	✓	✓
A2 EB exit / B259 Roundabout	EB	81708-81981	1,340	1,308	-32	-2%	0.9	✓	✓	1,572	1,555	-17	-1%	0.4	✓	✓
A226 Thames Way	EB	98579-28512	234	248	14	6%	0.9	✓	✓	269	281	12	4%	0.7	✓	✓
B2175 The Hill Northfleet S of Vicarage Drive	EB	89433-23165	412	412	-1	0%	0.0	✓	✓	473	472	-1	0%	0.1	✓	✓
B262 Station Road	WB	26019-26896	179	181	3	1%	0.2	✓	✓	205	208	3	1%	0.2	✓	✓
A2 westbound between A2260 and B259	WB	82915-81983	3,831	3,831	0	0%	0.0	✓	✓	4,801	4,788	-13	0%	0.2	✓	✓
A226 Thames Way	WB	28512-98579	346	346	0	0%	0.0	✓	✓	397	392	-5	-1%	0.2	✓	✓
B2175 The Hill Northfleet S of Vicarage Drive	WB	23165-89433	440	440	0	0%	0.0	✓	✓	505	505	0	0%	0.0	✓	✓
Screenline 4 EB Summary	EB	-	7,616	7,579	-37	0%		✓		9,189	9,168	-21	0%		✓	
Screenline 4 WB Summary	WB	-	4,796	4,799	3	0%		✓		5,908	5,893	-15	0%		✓	

Table C. 20 Screenline No.5

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A227 Wrotham Road	NB	28930-28923	554	554	0	0%	0.0	✓	✓	635	635	0	0%	0.0	✓	✓
New Barn Road	NB	47136-26899	351	351	0	0%	0.0	✓	✓	403	403	0	0%	0.0	✓	✓
B255 Whitehill Road	NB	90788-26554	249	249	0	0%	0.0	✓	✓	286	290	4	1%	0.3	✓	✓
B260 Main Road	NB	90788-26637	309	320	12	4%	0.7	✓	✓	359	368	9	3%	0.5	✓	✓
A225 Main Road	NB	90062-90050	666	666	0	0%	0.0	✓	✓	848	849	0	0%	0.0	✓	✓
M25 anti-clockwise between J3 and J2	NB	82485-81886	3,248	3,249	0	0%	0.0	✓	✓	4,539	4,540	0	0%	0.0	✓	✓
A227 Wrotham Road	SB	28923-28930	518	518	0	0%	0.0	✓	✓	575	575	0	0%	0.0	✓	✓
New Barn Road	SB	26899-47136	416	441	25	6%	1.2	✓	✓	478	503	25	5%	1.1	✓	✓
B255 Whitehill Road	SB	26554-90788	254	254	0	0%	0.0	✓	✓	291	295	4	1%	0.2	✓	✓
B260 Main Road	SB	26637-90788	467	467	0	0%	0.0	✓	✓	533	527	-5	-1%	0.2	✓	✓
A225 Main Road	SB	90050-90062	406	406	0	0%	0.0	✓	✓	457	456	0	0%	0.0	✓	✓
M25 clockwise between J2 and J3	SB	82483-81879	3,872	3,869	-3	0%	0.0	✓	✓	4,913	4,909	-3	0%	0.0	✓	✓
Screenline 5 NB Summary	NB	-	5,377	5,389	12	0%		✓		7,072	7,086	14	0%		✓	
Screenline 5 SB Summary	SB	-	5,932	5,955	23	0%		✓		7,246	7,266	20	0%		✓	

Table C. 21 Screenline No.6

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A227 Wrotham Road	NB	81896-20202	1,181	1,180	-1	0%	0.0	✓	✓	1,407	1,406	-1	0%	0.0	✓	✓
B262 Hall Road	NB	83355-28510	1,258	1,430	172	14%	4.7	✓	✓	1,443	1,695	253	18%	6.4	×	×
A2260 Southfleet Road North of A2 NW Rbt	NB	81985-23185	353	405	52	15%	2.7	✓	✓	445	509	63	14%	2.9	✓	✓
A2 / B255 Bean North Roundabout	NB	82953-83357	1,298	1,288	-10	-1%	0.3	✓	✓	1,482	1,457	-24	-2%	0.6	✓	✓
A2 eastbound exit for B255	NB	81890-82960	822	821	0	0%	0.0	✓	✓	972	970	-2	0%	0.1	✓	✓
A227 Wrotham Road	SB	20202-81896	1,103	1,103	0	0%	0.0	✓	✓	1,315	1,315	0	0%	0.0	✓	✓
B262 Hall Road	SB	28510-83355	1,273	1,324	51	4%	1.4	✓	✓	1,460	1,493	33	2%	0.8	✓	✓
A2260 Southfleet Road North of A2 NW Rbt	SB	23185-81985	838	890	52	6%	1.8	✓	✓	943	1,011	68	7%	2.2	✓	✓
A296 Roman Road	SB	27035-82964	1,286	1,224	-63	-5%	1.8	✓	✓	1,533	1,422	-112	-7%	2.9	✓	✓
A2 / B255 Bean North Roundabout	SB	83357-82953	1,083	1,073	-10	-1%	0.3	✓	✓	1,182	1,175	-7	-1%	0.2	✓	✓
Screenline 6 NB Summary	NB	-	4,911	5,123	212	4%		✓		5,749	6,037	288	5%		×	
Screenline 6 SB Summary	SB	-	5,583	5,613	30	1%		✓		6,434	6,416	-18	0%		✓	

C.4 Calibration across Key Junctions/Locations – AM Peak

Table C. 22 Bean North Junction

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
B255 Bean Lane (north of A2 North Roundabout) SB	27022-89866	83	78	-5	-6%	0.5	✓	✓	104	88	-17	-16%	1.7	✓	✓
B255 Bean Lane (north of A2 North Roundabout) NB	89866-27022	588	586	-2	0%	0.1	✓	✓	738	733	-5	-1%	0.2	✓	✓
A2 / B255 Bean North Roundabout NWB Entry Arm	83358-89865	343	343	0	0%	0.0	✓	✓	437	442	5	1%	0.2	✓	✓
A2 / B255 Bean North Roundabout NWB Exit Arm	83356-83359	880	880	0	0%	0.0	✓	✓	1,064	1,065	1	0%	0.0	✓	✓
A2 eastbound exit for B255	81890-82960	340	340	0	0%	0.0	✓	✓	461	480	19	4%	0.9	✓	✓
A2 / B255 Bean North Roundabout EB Exit Arm	83357-82953	417	421	4	1%	0.2	✓	✓	547	546	-1	0%	0.0	✓	✓
A2 / B255 Bean North Roundabout WB Entry Arm	82953-83357	1,271	1,126	-145	-11%	4.2	✓	✓	1,470	1,335	-136	-9%	3.6	✓	✓

Table C. 23 Bean South Junction

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
WB slips North to Bean Lane South	81917-82952-26016	12	-	-12	-100%	4.9	✓	✓	21	-	-21	-100%	6.5	✓	×
WB slips North to Bean Lane West	81917-82952-82953	1,073	932	-141	-13%	4.4	✓	✓	1,239	1,119	-120	-10%	3.5	✓	✓
Bean Lane South to Bean Lane West	26016-82952-82953	194	194	0	0%	0.0	✓	✓	230	215	-15	-6%	1.0	✓	✓
Bean Lane South to WB slips North	26016-82952-81891	142	142	0	0%	0.0	✓	✓	168	188	20	12%	1.5	✓	✓
A2 / B255 Bean South Roundabout Exclusive Left	82953-81891	322	325	3	1%	0.2	✓	✓	426	422	-5	-1%	0.2	✓	✓
Bean Lane West to Bean Lane South	82953-82952-26016	96	96	0	0%	0.0	✓	✓	121	125	4	3%	0.3	✓	✓
WB slips North Entry	81917-82952	1,085	932	-153	-14%	4.8	✓	✓	1,260	1,119	-141	-11%	4.1	✓	✓
Bean Lane South Entry	26016-82952	336	336	0	0%	0.0	✓	✓	398	403	5	1%	0.2	✓	✓
Bean Lane South Exit	82952-26016	108	96	-12	-11%	1.2	✓	✓	142	125	-17	-12%	1.5	✓	✓
Bean Lane West Exit	82952-82953	1,267	1,126	-141	-11%	4.1	✓	✓	1,469	1,334	-135	-9%	3.6	✓	✓

Table C. 24 Ebbsfleet East Junction

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
East offslip West to Southfleet Road North	81984-81708-81985	258	247	-11	-4%	0.7	✓	✓	340	305	-35	-10%	2.0	✓	✓
East offslip West to East onslip East	81984-81708-81981	351	346	-5	-1%	0.3	✓	✓	444	439	-5	-1%	0.2	✓	✓
Southfleet Road North to East onslip East	81985-81708-81981	156	149	-7	-4%	0.5	✓	✓	222	215	-6	-3%	0.4	✓	✓
East offslip West Entry	81984-81708	609	593	-16	-3%	0.7	✓	✓	784	744	-40	-5%	1.4	✓	✓
East onslip East Exit	81708-81981	507	495	-12	-2%	0.5	✓	✓	666	654	-12	-2%	0.5	✓	✓

Table C. 25 Ebbsfleet West Junction

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
Southfleet Road North Left Turn	23185-81985-81708	149	149	0	0%	0.0	✓	✓	217	215	-1	-1%	0.1	✓	✓
Southfleet Road North Through	23185-81985-76747	273	273	0	0%	0.0	✓	✓	395	365	-30	-8%	1.5	✓	✓
Southfleet Road North Right turn	23185-81985-89366	-	-	0			✓	×	-	-	0			✓	×
Southfleet Road East Left Turn	81708-81985-76747	12	-	-12	-100%	4.9	✓	✓	23	-	-23	-100%	6.8	✓	×
Southfleet Road East Through	81708-81985-89366	-	-	0			✓	×	1	-	-1	-100%	1.4	✓	✓
Southfleet Road East Right turn	81708-81985-23185	247	247	0	0%	0.0	✓	✓	316	305	-12	-4%	0.7	✓	✓
Southfleet Road South Left Turn	80003-81985-89366	1	-	-1	-100%	1.4	✓	✓	2	-	-2	-100%	2.0	✓	✓
Southfleet Road South Through	80003-81985-23185	474	357	-117	-25%	5.7	×	×	551	438	-113	-21%	5.1	×	×
Southfleet Road South Right turn	80003-81985-81708	1	-	-1	-100%	1.4	✓	✓	2	-	-2	-100%	2.0	✓	✓
Substation West Left Turn	89366-81985-23185	-	-	0			✓	×	-	-	0			✓	×
Substation West Through	89366-81985-81708	-	-	0			✓	×	-	-	0			✓	×
Substation West Right turn	89366-81985-76747	1	-	-1	-100%	1.4	✓	✓	1	-	-1	-100%	1.4	✓	✓
Southfleet Road North Entry	23185-81985	422	422	0	0%	0.0	✓	✓	612	580	-32	-5%	1.3	✓	✓
Southfleet Road East Entry	81708-81985	259	247	-12	-5%	0.8	✓	✓	340	305	-35	-10%	1.9	✓	✓
Southfleet Road South Entry	80003-81985	476	357	-119	-25%	5.8	×	×	555	438	-117	-21%	5.3	×	×
Substation West Entry	89366-81985	1	0	-1	-100%	1.4	✓	✓	1	0	-1	-100%	1.4	✓	✓
Southfleet Road North Exit	81985-23185	721	604	-117	-16%	4.5	×	✓	867	743	-124	-14%	4.4	✓	✓
Ebbsfleet East Exit	81985-81708	150	149	-1	-1%	0.1	✓	✓	219	215	-4	-2%	0.3	✓	✓
Ebbsfleet South Exit	81985-76747	286	273	-13	-5%	0.8	✓	✓	419	365	-54	-13%	2.7	✓	✓
Substation West Exit	81985-89366	1	0	-1	-100%	1.4	✓	✓	3	0	-3	-100%	2.4	✓	✓

Table C. 26 Hall Road/A2 On Off Slip Junction

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
Hall Road North Left Turn	83355-82956-82375	208	214	7	3%	0.5	✓	✓	265	275	10	4%	0.6	✓	✓
Hall Road North Through	83355-82956-82535	758	781	23	3%	0.8	✓	✓	980	988	8	1%	0.3	✓	✓
Hall Road South Through	82534-82955-83355	483	456	-27	-6%	1.3	✓	✓	605	568	-38	-6%	1.6	✓	✓
Hall Road South Right turn	82534-82535-82375	158	90	-68	-43%	6.1	✓	×	201	134	-67	-33%	5.2	✓	×
East Offslip West Left Turn	81981-82955-83355	374	353	-21	-6%	1.1	✓	✓	467	446	-21	-5%	1.0	✓	✓

Table C. 27 Hall Road/New Barn Road Roundabout

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
Hall Road North Left Turn	82535-76743-81893	533	510	-23	-4%	1.0	✓	✓	693	661	-32	-5%	1.2	✓	✓
Hall Road North Through	82535-76743-26901	116	163	47	40%	3.9	✓	✓	152	198	46	31%	3.5	✓	✓
Hall Road North Right turn	82535-76743-26019	114	109	-5	-5%	0.5	✓	✓	136	129	-8	-6%	0.7	✓	✓
West on/offslip East Left Turn	81893-76743-26901	121	62	-59	-48%	6.1	✓	×	157	96	-61	-39%	5.4	✓	×
West on/offslip East Through	81893-76743-26019	138	107	-32	-23%	2.9	✓	✓	186	152	-35	-19%	2.7	✓	✓
West on/offslip East Right turn	81893-76743-82534	277	277	0	0%	0.0	✓	✓	363	353	-10	-3%	0.5	✓	✓
New Barn Road South Left Turn	26901-76743-26019	5	-	-5	-100%	3.2	✓	✓	7	-	-7	-100%	3.8	✓	✓
New Barn Road South Through	26901-76743-82534	243	156	-87	-36%	6.2	✓	×	293	204	-89	-30%	5.7	✓	×
New Barn Road South Right turn	26901-76743-81893	139	169	29	21%	2.4	✓	✓	156	187	31	20%	2.4	✓	✓
Station Road West Left Turn	26019-76743-82534	121	113	-8	-7%	0.7	✓	✓	155	145	-10	-6%	0.8	✓	✓
Station Road West Through	26019-76743-81893	18	42	24	129%	4.3	✓	✓	27	49	22	79%	3.5	✓	✓
Station Road West Right turn	26019-76743-26901	3	-	-3	-100%	2.5	✓	✓	4	-	-4	-100%	2.9	✓	✓

Table C. 28 A2 Sections around Bean and Ebbsfleet Sections

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
A2 eastbound after M25 J2 roundabout access	81623-82340	2,046	2,046	0	0%	0.0	✓	✓	2,728	2,729	0	0%	0.0	✓	✓
link road from M25 J2 clockwise to A2 eastbound	82209-81689	764	764	0	0%	0.0	✓	✓	1,269	1,302	33	3%	0.9	✓	✓
link road from A2 westbound to M25 J2 anti-clockwise	81649-81888	952	957	6	1%	0.2	✓	✓	1,535	1,533	-2	0%	0.1	✓	✓
A2 westbound before M25 J2 roundabout exit	81649-81625	3,659	3,681	22	1%	0.4	✓	✓	4,845	4,854	9	0%	0.1	✓	✓
A2 eastbound after M25 J2 roundabout access	82526-81890	2,810	2,810	0	0%	0.0	✓	✓	3,997	4,030	33	1%	0.5	✓	✓
A2 westbound between B255 and M25xA282	82921-82524	4,662	4,639	-23	0%	0.3	✓	✓	6,363	6,387	23	0%	0.3	✓	✓
A2 eastbound between B255 and B259	82922-81984	2,846	2,869	23	1%	0.4	✓	✓	4,191	4,075	-116	-3%	1.8	✓	✓
A2 westbound within the B255 junction	81917-81889	3,825	4,172	346	9%	5.5	✓	×	5,326	5,777	451	8%	6.1	×	×
A2 eastbound within the B259 junction	81984-81980	2,280	2,276	-5	0%	0.1	✓	✓	3,300	3,332	32	1%	0.6	✓	✓
A2 westbound between A2260 and B259	82915-81983	4,897	5,199	302	6%	4.3	✓	✓	6,705	6,986	282	4%	3.4	✓	✓

C.5 Calibration across Key Junctions/Locations – Inter Peak

Table C. 29 Bean North Junction

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
B255 Bean Lane (north of A2 North Roundabout) SB	27022-89866	242	133	-109	-45%	8.0	×	×	295	137	-158	-53%	10.7	×	×
B255 Bean Lane (north of A2 North Roundabout) NB	89866-27022	314	312	-2	-1%	0.1	✓	✓	383	414	31	8%	1.6	✓	✓
A2 / B255 Bean North Roundabout NWB Entry Arm	83358-89865	551	518	-33	-6%	1.4	✓	✓	614	583	-30	-5%	1.2	✓	✓
A2 / B255 Bean North Roundabout NWB Exit Arm	83356-83359	1,753	1,511	-242	-14%	6.0	✓	×	1,924	1,718	-206	-11%	4.8	✓	✓
A2 eastbound exit for B255	81890-82960	709	731	22	3%	0.8	✓	✓	916	925	9	1%	0.3	✓	✓
A2 / B255 Bean North Roundabout EB Exit Arm	83357-82953	657	657	0	0%	0.0	✓	✓	756	756	0	0%	0.0	✓	✓
A2 / B255 Bean North Roundabout WB Entry Arm	82953-83357	1,103	1,098	-5	0%	0.1	✓	✓	1,248	1,243	-5	0%	0.1	✓	✓

Table C. 30 Bean South Junction

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
WB slips North to Bean Lane South	81917-82952-26016	30	27	-3	-11%	0.6	✓	✓	39	35	-4	-10%	0.6	✓	✓
WB slips North to Bean Lane West	81917-82952-82953	917	917	0	0%	0.0	✓	✓	1,032	1,056	24	2%	0.7	✓	✓
Bean Lane South to Bean Lane West	26016-82952-82953	186	181	-5	-2%	0.3	✓	✓	213	187	-25	-12%	1.8	✓	✓
Bean Lane South to WB slips North	26016-82952-81891	52	111	59	114%	6.5	✓	×	68	133	66	98%	6.6	✓	×
A2 / B255 Bean South Roundabout Exclusive Left	82953-81891	481	482	1	0%	0.1	✓	✓	547	544	-3	0%	0.1	✓	✓
Bean Lane West to Bean Lane South	82953-82952-26016	175	175	0	0%	0.0	✓	✓	208	212	5	2%	0.3	✓	✓
WB slips North Entry	81917-82952	947	944	-3	0%	0.1	✓	✓	1,071	1,091	20	2%	0.6	✓	✓
Bean Lane South Entry	26016-82952	238	292	54	23%	3.3	✓	✓	281	320	39	14%	2.2	✓	✓
Bean Lane South Exit	82952-26016	205	202	-3	-1%	0.2	✓	✓	247	247	0	0%	0.0	✓	✓
Bean Lane West Exit	82952-82953	1,103	1,098	-5	0%	0.2	✓	✓	1,245	1,243	-2	0%	0.1	✓	✓

Table C. 31 Ebbsfleet East Junction

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
East offslip West to Southfleet Road North	81984-81708-81985	158	138	-20	-13%	1.7	✓	✓	256	223	-33	-13%	2.1	✓	✓
East offslip West to East onslip East	81984-81708-81981	386	387	1	0%	0.0	✓	✓	487	487	1	0%	0.0	✓	✓
Southfleet Road North to East onslip East	81985-81708-81981	162	151	-11	-7%	0.9	✓	✓	221	211	-10	-5%	0.7	✓	✓
East offslip West Entry	81984-81708	544	525	-19	-3%	0.8	✓	✓	743	710	-33	-4%	1.2	✓	✓
East onslip East Exit	81708-81981	548	538	-10	-2%	0.4	✓	✓	708	698	-10	-1%	0.4	✓	✓

Table C. 32 Ebbsfleet West Junction

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
Southfleet Road North Left Turn	23185-81985-81708	151	151	0	0%	0.0	✓	✓	209	211	2	1%	0.1	✓	✓
Southfleet Road North Through	23185-81985-76747	167	164	-3	-2%	0.2	✓	✓	244	224	-20	-8%	1.3	✓	✓
Southfleet Road North Right turn	23185-81985-89366	0	-	0	-100%	0.6	✓	✓	0	-	0	-100%	0.6	✓	✓
Southfleet Road East Left Turn	81708-81985-76747	21	-	-21	-100%	6.5	✓	×	35	-	-35	-100%	8.3	✓	×
Southfleet Road East Through	81708-81985-89366	0	-	0	-100%	0.8	✓	✓	0	-	0	-100%	0.8	✓	✓
Southfleet Road East Right turn	81708-81985-23185	138	138	0	0%	0.0	✓	✓	224	223	0	0%	0.0	✓	✓
Southfleet Road South Left Turn	80003-81985-89366	0	-	0	-100%	0.6	✓	✓	0	-	0	-100%	0.6	✓	✓
Southfleet Road South Through	80003-81985-23185	161	161	0	0%	0.0	✓	✓	217	221	4	2%	0.2	✓	✓
Southfleet Road South Right turn	80003-81985-81708	11	-	-11	-100%	4.8	✓	✓	12	-	-12	-100%	5.0	✓	✓
Substation West Left Turn	89366-81985-23185	-	-	0			✓	×	-	-	0			✓	×
Substation West Through	89366-81985-81708	0	-	0	-100%	0.6	✓	✓	0	-	0	-100%	0.6	✓	✓
Substation West Right turn	89366-81985-76747	1	-	-1	-100%	1.2	✓	✓	1	-	-1	-100%	1.4	✓	✓
Southfleet Road North Entry	23185-81985	318	315	-3	-1%	0.2	✓	✓	453	435	-18	-4%	0.9	✓	✓
Southfleet Road East Entry	81708-81985	159	138	-21	-13%	1.7	✓	✓	259	223	-36	-14%	2.3	✓	✓
Southfleet Road South Entry	80003-81985	172	161	-11	-6%	0.9	✓	✓	229	221	-8	-3%	0.5	✓	✓
Substation West Entry	89366-81985	1	0	-1	-100%	1.4	✓	✓	1	0	-1	-100%	1.4	✓	✓
Southfleet Road North Exit	81985-23185	299	299	0	0%	0.0	✓	✓	441	444	3	1%	0.1	✓	✓
Ebbsfleet East Exit	81985-81708	162	151	-11	-7%	0.9	✓	✓	221	211	-10	-5%	0.7	✓	✓
Ebbsfleet South Exit	81985-76747	189	164	-25	-13%	1.9	✓	✓	280	224	-56	-20%	3.5	✓	✓
Substation West Exit	81985-89366	0	0	0			✓	×	0	0	0			✓	×

Table C. 33 Hall Road/A2 On Off Slip Junction

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
Hall Road North Left Turn	83355-82956-82375	276	275	-1	-1%	0.1	✓	✓	332	345	13	4%	0.7	✓	✓
Hall Road North Through	83355-82956-82535	684	682	-2	0%	0.1	✓	✓	801	799	-2	0%	0.1	✓	✓
Hall Road South Through	82534-82955-83355	575	536	-38	-7%	1.6	✓	✓	668	625	-43	-6%	1.7	✓	✓
Hall Road South Right turn	82534-82535-82375	176	176	0	0%	0.0	✓	✓	212	216	4	2%	0.3	✓	✓
East Offslip West Left Turn	81981-82955-83355	423	394	-29	-7%	1.4	✓	✓	529	495	-34	-6%	1.5	✓	✓

Table C. 34 Hall Road/New Barn Road Roundabout

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
Hall Road North Left Turn	82535-76743-81893	297	341	44	15%	2.5	✓	✓	363	409	46	13%	2.3	✓	✓
Hall Road North Through	82535-76743-26901	217	217	0	0%	0.0	✓	✓	249	251	1	1%	0.1	✓	✓
Hall Road North Right turn	82535-76743-26019	171	123	-48	-28%	3.9	✓	✓	187	138	-49	-26%	3.8	✓	✓
West on/offslip East Left Turn	81893-76743-26901	69	69	0	0%	0.0	✓	✓	90	89	-2	-2%	0.2	✓	✓
West on/offslip East Through	81893-76743-26019	149	107	-41	-28%	3.7	✓	✓	172	130	-42	-24%	3.4	✓	✓
West on/offslip East Right turn	81893-76743-82534	203	232	29	15%	2.0	✓	✓	249	279	30	12%	1.8	✓	✓
New Barn Road South Left Turn	26901-76743-26019	51	-	-51	-100%	10.1	✓	×	53	-	-53	-100%	10.3	✓	×
New Barn Road South Through	26901-76743-82534	241	241	0	0%	0.0	✓	✓	283	284	1	0%	0.1	✓	✓
New Barn Road South Right turn	26901-76743-81893	65	41	-24	-37%	3.3	✓	✓	75	48	-28	-37%	3.5	✓	✓
Station Road West Left Turn	26019-76743-82534	310	239	-71	-23%	4.3	✓	✓	351	277	-74	-21%	4.2	✓	✓
Station Road West Through	26019-76743-81893	46	35	-11	-23%	1.6	✓	✓	59	43	-16	-27%	2.2	✓	✓
Station Road West Right turn	26019-76743-26901	39	-	-39	-100%	8.8	✓	×	41	-	-41	-100%	9.1	✓	×

Table C. 35 A2 Sections around Bean and Ebbsfleet Sections

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
A2 eastbound after M25 J2 roundabout access	81623-82340	2,109	2,110	0	0%	0.0	✓	✓	2,832	2,831	-1	0%	0.0	✓	✓
link road from M25 J2 clockwise to A2 eastbound	82209-81689	653	653	0	0%	0.0	✓	✓	1,112	1,113	1	0%	0.0	✓	✓
link road from A2 westbound to M25 J2 anti-clockwise	81649-81888	650	654	4	1%	0.1	✓	✓	1,192	1,189	-3	0%	0.1	✓	✓
A2 westbound before M25 J2 roundabout exit	81649-81625	1,962	1,973	12	1%	0.3	✓	✓	2,617	2,617	0	0%	0.0	✓	✓
A2 eastbound after M25 J2 roundabout access	82526-81890	2,763	2,763	0	0%	0.0	✓	✓	3,944	3,944	0	0%	0.0	✓	✓
A2 westbound between B255 and M25xA282	82921-82524	2,643	2,627	-16	-1%	0.3	✓	✓	3,803	3,806	3	0%	0.0	✓	✓
A2 eastbound between B255 and B259	82922-81984	2,701	2,704	3	0%	0.1	✓	✓	4,007	3,874	-134	-3%	2.1	✓	✓
A2 westbound within the B255 junction	81917-81889	2,022	2,034	12	1%	0.3	✓	✓	2,993	3,128	135	5%	2.4	✓	✓
A2 eastbound within the B259 junction	81984-81980	2,179	2,179	1	0%	0.0	✓	✓	3,163	3,163	0	0%	0.0	✓	✓
A2 westbound between A2260 and B259	82915-81983	2,987	2,987	0	0%	0.0	✓	✓	4,286	4,247	-38	-1%	0.6	✓	✓

C.6 Calibration across Key Junctions/Locations – PM Peak

Table C. 36 Bean North Junction

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
B255 Bean Lane (north of A2 North Roundabout) SB	27022-89866	311	310	-1	0%	0.1	✓	✓	356	329	-27	-8%	1.5	✓	✓
B255 Bean Lane (north of A2 North Roundabout) NB	89866-27022	429	421	-9	-2%	0.4	✓	✓	492	513	21	4%	0.9	✓	✓
A2 / B255 Bean North Roundabout NWB Entry Arm	83358-89865	849	788	-60	-7%	2.1	✓	✓	911	846	-65	-7%	2.2	✓	✓
A2 / B255 Bean North Roundabout NWB Exit Arm	83356-83359	1,798	1,714	-84	-5%	2.0	✓	✓	1,996	1,914	-82	-4%	1.8	✓	✓
A2 eastbound exit for B255	81890-82960	822	821	0	0%	0.0	✓	✓	972	970	-2	0%	0.1	✓	✓
A2 / B255 Bean North Roundabout EB Exit Arm	83357-82953	1,083	1,073	-10	-1%	0.3	✓	✓	1,182	1,175	-7	-1%	0.2	✓	✓
A2 / B255 Bean North Roundabout WB Entry Arm	82953-83357	1,298	1,288	-10	-1%	0.3	✓	✓	1,482	1,457	-24	-2%	0.6	✓	✓

Table C. 37 Bean South Junction

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
WB slips North to Bean Lane South	81917-82952-26016	45	41	-4	-8%	0.6	✓	✓	54	47	-7	-13%	1.0	✓	✓
WB slips North to Bean Lane West	81917-82952-82953	1,046	1,039	-7	-1%	0.2	✓	✓	1,203	1,196	-7	-1%	0.2	✓	✓
Bean Lane South to Bean Lane West	26016-82952-82953	251	249	-2	-1%	0.1	✓	✓	287	262	-25	-9%	1.5	✓	✓
Bean Lane South to WB slips North	26016-82952-81891	69	99	29	43%	3.2	✓	✓	84	132	48	57%	4.6	✓	✓
A2 / B255 Bean South Roundabout Exclusive Left	82953-81891	732	732	0	0%	0.0	✓	✓	787	784	-2	0%	0.1	✓	✓
Bean Lane West to Bean Lane South	82953-82952-26016	341	341	0	0%	0.0	✓	✓	381	391	10	3%	0.5	✓	✓
WB slips North Entry	81917-82952	1,091	1,080	-11	-1%	0.3	✓	✓	1,257	1,243	-14	-1%	0.4	✓	✓
Bean Lane South Entry	26016-82952	320	348	28	9%	1.5	✓	✓	371	394	23	6%	1.2	✓	✓
Bean Lane South Exit	82952-26016	386	382	-4	-1%	0.2	✓	✓	435	438	3	1%	0.1	✓	✓
Bean Lane West Exit	82952-82953	1,297	1,288	-9	-1%	0.3	✓	✓	1,490	1,458	-32	-2%	0.8	✓	✓

Table C. 38 Ebbsfleet East Junction

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
East offslip West to Southfleet Road North	81984-81708-81985	193	156	-37	-19%	2.8	✓	✓	268	219	-48	-18%	3.1	✓	✓
East offslip West to East onslip East	81984-81708-81981	807	773	-34	-4%	1.2	✓	✓	971	938	-32	-3%	1.0	✓	✓
Southfleet Road North to East onslip East	81985-81708-81981	533	535	2	0%	0.1	✓	✓	601	616	15	3%	0.6	✓	✓
East offslip West Entry	81984-81708	1000	929	-71	-7%	2.3	✓	✓	1239	1157	-82	-7%	2.4	✓	✓
East onslip East Exit	81708-81981	1340	1308	-32	-2%	0.9	✓	✓	1572	1554	-18	-1%	0.5	✓	✓

Table C. 39 Ebbsfleet West Junction

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
Southfleet Road North Left Turn	23185-81985-81708	528	535	7	1%	0.3	✓	✓	593	616	23	4%	0.9	✓	✓
Southfleet Road North Through	23185-81985-76747	405	354	-51	-12%	2.6	✓	✓	447	395	-52	-12%	2.5	✓	✓
Southfleet Road North Right turn	23185-81985-89366	3	-	-3	-100%	2.5	✓	✓	3	-	-3	-100%	2.5	✓	✓
Southfleet Road East Left Turn	81708-81985-76747	37	-	-37	-100%	8.6	✓	×	43	-	-43	-100%	9.2	✓	×
Southfleet Road East Through	81708-81985-89366	5	-	-5	-100%	3.2	✓	✓	5	-	-5	-100%	3.2	✓	✓
Southfleet Road East Right turn	81708-81985-23185	155	156	2	1%	0.1	✓	✓	225	219	-5	-2%	0.4	✓	✓
Southfleet Road South Left Turn	80003-81985-89366	-	-	0			✓	×	-	-	0			✓	×
Southfleet Road South Through	80003-81985-23185	249	249	-1	0%	0.0	✓	✓	296	289	-7	-2%	0.4	✓	✓
Southfleet Road South Right turn	80003-81985-81708	2	0	-2	-94%	1.8	✓	✓	2	0	-2	-94%	1.8	✓	✓
Substation West Left Turn	89366-81985-23185	-	-	0			✓	×	-	-	0			✓	×
Substation West Through	89366-81985-81708	2	-	-2	-100%	2.0	✓	✓	2	-	-2	-100%	2.0	✓	✓
Substation West Right turn	89366-81985-76747	1	-	-1	-100%	1.4	✓	✓	4	-	-4	-100%	2.9	✓	✓
Southfleet Road North Entry	23185-81985	936	889	-47	-5%	1.6	✓	✓	1043	1011	-32	-3%	1.0	✓	✓
Southfleet Road East Entry	81708-81985	197	156	-41	-21%	3.1	✓	✓	273	219	-54	-20%	3.4	✓	✓
Southfleet Road South Entry	80003-81985	251	249	-2	-1%	0.1	✓	✓	298	289	-9	-3%	0.5	✓	✓
Substation West Entry	89366-81985	3	0	-3	-100%	2.4	✓	✓	6	0	-6	-100%	3.5	✓	✓
Southfleet Road North Exit	81985-23185	404	405	1	0%	0.0	✓	✓	521	508	-13	-2%	0.6	✓	✓
Ebbsfleet East Exit	81985-81708	532	535	3	1%	0.1	✓	✓	597	616	19	3%	0.8	✓	✓
Ebbsfleet South Exit	81985-76747	443	354	-89	-20%	4.5	✓	✓	494	395	-99	-20%	4.7	✓	✓
Substation West Exit	81985-89366	8	0	-8	-100%	4.0	✓	✓	8	0	-8	-100%	4.0	✓	✓

Table C. 40 Hall Road/A2 On Off Slip Junction

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
Hall Road North Left Turn	83355-82956-82375	518	585	67	13%	2.9	✓	✓	575	652	77	13%	3.1	✓	✓
Hall Road North Through	83355-82956-82535	772	739	-34	-4%	1.2	✓	✓	867	841	-26	-3%	0.9	✓	✓
Hall Road South Through	82534-82955-83355	671	631	-40	-6%	1.6	✓	✓	779	726	-53	-7%	1.9	✓	✓
Hall Road South Right turn	82534-82535-82375	388	228	-159	-41%	9.1	×	×	461	303	-158	-34%	8.1	×	×
East Offslip West Left Turn	81981-82955-83355	881	799	-82	-9%	2.8	✓	✓	1,069	969	-100	-9%	3.1	✓	✓

Table C. 41 Hall Road/New Barn Road Roundabout

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
Hall Road North Left Turn	82535-76743-81893	333	332	-1	0%	0.1	✓	✓	377	384	7	2%	0.4	✓	✓
Hall Road North Through	82535-76743-26901	345	307	-38	-11%	2.1	✓	✓	381	344	-37	-10%	1.9	✓	✓
Hall Road North Right turn	82535-76743-26019	102	100	-2	-2%	0.2	✓	✓	114	113	-1	0%	0.1	✓	✓
West on/offslip East Left Turn	81893-76743-26901	123	123	0	0%	0.0	✓	✓	140	139	-1	-1%	0.1	✓	✓
West on/offslip East Through	81893-76743-26019	75	81	6	8%	0.7	✓	✓	84	95	10	12%	1.1	✓	✓
West on/offslip East Right turn	81893-76743-82534	257	175	-82	-32%	5.6	✓	×	305	228	-77	-25%	4.7	✓	✓
New Barn Road South Left Turn	26901-76743-26019	7	-	-7	-100%	3.8	✓	✓	7	-	-7	-100%	3.8	✓	✓
New Barn Road South Through	26901-76743-82534	299	208	-91	-30%	5.7	✓	×	340	249	-91	-27%	5.3	✓	×
New Barn Road South Right turn	26901-76743-81893	68	68	0	0%	0.0	✓	✓	76	74	-3	-4%	0.3	✓	✓
Station Road West Left Turn	26019-76743-82534	487	475	-12	-2%	0.5	✓	✓	579	552	-27	-5%	1.1	✓	✓
Station Road West Through	26019-76743-81893	39	37	-1	-3%	0.2	✓	✓	50	44	-6	-12%	0.9	✓	✓
Station Road West Right turn	26019-76743-26901	32	-	-32	-100%	7.9	✓	×	35	-	-35	-100%	8.3	✓	×

Table C. 42 A2 Sections around Bean and Ebbsfleet Sections

Location	SATURN Link	Cars only							Total (in vehicles)						
		Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
							Flow	GEH						Flow	GEH
A2 eastbound after M25 J2 roundabout access	81623-82340	4,122	4,152	30	1%	0.5	✓	✓	4,943	4,973	30	1%	0.4	✓	✓
link road from M25 J2 clockwise to A2 eastbound	82209-81689	1,450	1,468	18	1%	0.5	✓	✓	1,975	1,995	20	1%	0.4	✓	✓
link road from A2 westbound to M25 J2 anti-clockwise	81649-81888	628	628	0	0%	0.0	✓	✓	955	958	3	0%	0.1	✓	✓
A2 westbound before M25 J2 roundabout exit	81649-81625	3,008	3,022	13	0%	0.2	✓	✓	3,584	3,568	-16	0%	0.3	✓	✓
A2 eastbound after M25 J2 roundabout access	82526-81890	5,571	5,618	47	1%	0.6	✓	✓	6,918	6,966	49	1%	0.6	✓	✓
A2 westbound between B255 and M25xA282	82921-82524	3,672	3,649	-22	-1%	0.4	✓	✓	4,543	4,525	-18	0%	0.3	✓	✓
A2 eastbound between B255 and B259	82922-81984	6,113	6,028	-85	-1%	1.1	✓	✓	7,596	7,423	-173	-2%	2.0	✓	✓
A2 westbound within the B255 junction	81917-81889	2,749	2,818	68	2%	1.3	✓	✓	3,484	3,608	124	4%	2.1	✓	✓
A2 eastbound within the B259 junction	81984-81980	5,114	5,099	-15	0%	0.2	✓	✓	6,284	6,265	-19	0%	0.2	✓	✓
A2 westbound between A2260 and B259	82915-81983	3,831	3,831	0	0%	0.0	✓	✓	4,801	4,788	-13	0%	0.2	✓	✓

Appendix D. Link Flow Validation

D.1 Link Flow Validation across Screenlines – AM Peak

Table D. 1 Screenline Totals

Screenline	Dir	Cars only					Total (in vehicles)				
		Count	Model	Diff	% Diff	WebTAG Flow	Count	Model	Diff	% Diff	WebTAG Flow
Screenline 1	NB	2016	2,065	49	2%	✓	2,534	2,553	18	1%	✓
	SB	1278	1,257	-21	-2%	✓	1,641	1,652	12	1%	✓
Screenline 2	NB	6905	7,198	294	4%	✓	9,354	9,703	349	4%	✓
	SB	5444	5,434	-10	0%	✓	8,586	8,354	-232	-3%	✓

Table D. 2 Screenline No.1

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A227 Wrotham Road South of A2 Junction	NB	47131-82353	515	612	96	19%	4.1	✓	✓	682	775	94	14%	3.5	✓	✓
New barn Road	NB	26901-76743	401	325	-76	-19%	4.0	✓	✓	471	391	-80	-17%	3.9	✓	✓
B262 Station Road	NB	26896-26019	155	155	0	0%	0.0	✓	✓	195	194	-1	0%	0.0	✓	✓
B255 Bean Lane (south of A2 South Roundabout)	NB	26016-82952	316	336	20	6%	1.1	✓	✓	397	404	6	2%	0.3	✓	✓
B260 Green Street Green Road	NB	89426-22334	629	638	0	0%	0.0	✓	✓	790	789	-1	0%	0.0	✓	✓
A227 Wrotham Road South of A2 Junction	SB	82353-47131	354	334	-20	-6%	1.1	✓	✓	468	466	-2	-1%	0.1	✓	✓
New barn Road	SB	76743-26901	208	225	17	8%	1.2	✓	✓	270	294	24	9%	1.4	✓	✓
B262 Station Road	SB	26019-26896	244	215	-29	-12%	1.9	✓	✓	306	281	-26	-8%	1.5	✓	✓
Park Corner Road	SB	76747-26897	32	11	0	0%	0.0	✓	✓	43	17	-26	-61%	4.8	✓	✓
B255 Bean Lane (south of A2 South Roundabout)	SB	82952-26016	122	96	0	0%	0.0	✓	✓	153	125	-28	-18%	2.4	✓	✓
B260 Green Street Green Road	SB	22334-89426	318	375	0	0%	0.0	✓	✓	399	470	70	18%	3.4	✓	✓
Screenline 1 NB Summary	NB	-	2,016	2,065	49	2%		✓		2,534	2,553	18	1%		✓	
Screenline 1 SB Summary	SB	-	1,278	1,257	-21	-2%		✓		1,641	1,652	12	1%		✓	

Table D. 3 Screenline No.2

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A226 / B262 Roundabout	NB	28512-28544	310	391	81	26%	4.3	✓	✓	403	478	75	19%	3.6	✓	✓
A2260 / B259 Roundabout	NB	23185-89364	419	225	-194	-46%	10.8	×	×	515	265	-250	-49%	12.7	×	×

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
Southfleet Road (North of the roundabout)	NB	23185-89430	227	436	209	92%	11.5	×	×	279	526	247	88%	12.3	×	×
A2 / B255 Bean North Roundabout	NB	83356-83359	880	880	0	0%	0.0	✓	✓	1,064	1,065	1	0%	0.0	✓	✓
A296 / St James' Lane Roundabout	NB	22243-27506	702	709	7	1%	0.2	✓	✓	810	861	51	6%	1.7	✓	✓
A282 northbound within the A296xA225 junction	NB	82482-81904	3,377	3,514	137	4%	2.3	✓	✓	5,000	5,199	200	4%	2.8	✓	✓
A282 northbound distributor between A2 and A296xA225	NB	81887-88688	773	827	54	7%	1.9	✓	✓	1,023	1,050	27	3%	0.8	✓	✓
Gore Road	NB	22334-22332	216	216	0	0%	0.0	✓	✓	259	259	0	0%	0.0	✓	✓
A226 / B262 Roundabout	SB	28544-28512	517	503	-14	-3%	0.6	✓	✓	642	644	2	0%	0.1	✓	✓
A2260 / B259 Roundabout	SB	89364-23185	279	255	-24	-8%	1.4	✓	✓	422	344	-79	-19%	4.0	✓	✓
Southfleet Road (North of the roundabout)	SB	89430-23185	249	291	42	17%	2.5	✓	✓	306	374	68	22%	3.7	✓	✓
B255 between Mounts Road and A296	SB	27020-27008	625	635	10	2%	0.4	✓	✓	791	771	-20	-3%	0.7	✓	✓
A296 / St James' Lane Roundabout	SB	27506-22243	334	308	-26	-8%	1.4	✓	✓	418	411	-7	-2%	0.3	✓	✓
A282 southbound distributor between A2 and A296xA225	SB	81990-81898	509	451	-58	-11%	2.6	✓	✓	704	644	-61	-9%	2.3	✓	✓
A282 southbound within the A296xA225 junction	SB	81905-81899	2,764	2,828	64	2%	1.2	✓	✓	5,101	4,964	-137	-3%	1.9	✓	✓
Gore Road	SB	22332-22334	168	163	-5	-3%	0.4	✓	✓	202	203	1	1%	0.1	✓	✓
Screenline 2 NB Summary	NB	-	6,905	7,198	294	4%		✓		9,354	9,703	349	4%		✓	
Screenline 2 SB Summary	SB	-	5,444	5,434	-10	0%		✓		8,586	8,354	-232	-3%		✓	

D.2 Link Flow Validation across Screenlines – Inter Peak

Table D. 4 Screenline Totals

Screenline	Dir	Cars only					Total (in vehicles)				
		Count	Model	Diff	% Diff	WebTAG Flow	Count	Model	Diff	% Diff	WebTAG Flow
Screenline 1	NB	1675	1,761	86	5%	×	2,065	2,106	42	2%	✓
	SB	1439	1,505	66	5%	✓	1,789	1,858	69	4%	✓
Screenline 2	NB	5801	5,623	-178	-3%	✓	8,224	8,152	-72	-1%	✓
	SB	5316	5,190	-126	-2%	✓	7,530	7,346	-184	-2%	✓

Table D. 5 Screenline No.1

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A227 Wrotham Road South of A2 Junction	NB	47131-82353	417	419	2	1%	0.1	✓	✓	552	539	-13	-2%	0.5	✓	✓
New barn Road	NB	26901-76743	340	282	-58	-17%	3.3	✓	✓	392	332	-61	-15%	3.2	✓	✓

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
B262 Station Road	NB	26896-26019	214	275	61	28%	3.9	✓	✓	261	320	60	23%	3.5	✓	✓
B255 Bean Lane (south of A2 South Roundabout)	NB	26016-82952	232	292	60	26%	3.7	✓	✓	283	321	37	13%	2.2	✓	✓
B260 Green Street Green Road	NB	89426-22334	473	494	21	4%	1.0	✓	✓	577	594	18	3%	0.7	✓	✓
A227 Wrotham Road South of A2 Junction	SB	82353-47131	383	377	-5	-1%	0.3	✓	✓	507	495	-12	-2%	0.5	✓	✓
New barn Road	SB	76743-26901	312	286	-26	-8%	1.5	✓	✓	367	340	-27	-7%	1.4	✓	✓
B262 Station Road	SB	26019-26896	163	230	67	41%	4.8	✓	✓	199	268	69	34%	4.5	✓	✓
Park Corner Road	SB	76747-26897	38	12	-26	-68%	5.1	✓	×	53	32	-21	-40%	3.3	✓	✓
B255 Bean Lane (south of A2 South Roundabout)	SB	82952-26016	195	202	7	3%	0.5	✓	✓	238	247	9	4%	0.6	✓	✓
B260 Green Street Green Road	SB	22334-89426	348	398	49	14%	2.5	✓	✓	425	477	52	12%	2.4	✓	✓
Screenline 1 NB Summary	NB	-	1,675	1,761	86	5%		×		2,065	2,106	42	2%		✓	
Screenline 1 SB Summary	SB	-	1,439	1,505	66	5%		✓		1,789	1,858	69	4%		✓	

Table D. 6 Screenline No.2

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A226 / B262 Roundabout	NB	28512-28544	354	304	-50	-14%	2.8	✓	✓	442	397	-44	-10%	2.2	✓	✓
A2260 / B259 Roundabout	NB	23185-89364	166	147	-19	-11%	1.5	✓	✓	278	199	-79	-28%	5.1	✓	×
Southfleet Road (North of the roundabout)	NB	23185-89430	177	220	43	24%	3.0	✓	✓	216	297	81	38%	5.1	✓	×
A2 / B255 Bean North Roundabout	NB	83356-83359	1,753	1,511	-242	-14%	6.0	✓	×	1,924	1,718	-206	-11%	4.8	✓	✓
A296 / St James' Lane Roundabout	NB	22243-27506	471	449	-22	-5%	1.0	✓	✓	540	571	31	6%	1.3	✓	✓
A282 northbound within the A296xA225 junction	NB	82482-81904	2,195	2,222	27	1%	0.6	✓	✓	3,917	4,025	107	3%	1.7	✓	✓
A282 northbound distributor between A2 and A296xA225	NB	81887-88688	466	547	80	17%	3.6	✓	✓	653	684	32	5%	1.2	✓	✓
Gore Road	NB	22334-22332	219	224	5	2%	0.3	✓	✓	255	261	6	2%	0.4	✓	✓
A226 / B262 Roundabout	SB	28544-28512	451	406	-45	-10%	2.2	✓	✓	558	515	-43	-8%	1.9	✓	✓
A2260 / B259 Roundabout	SB	89364-23185	239	207	-32	-13%	2.1	✓	✓	353	259	-94	-27%	5.4	✓	×
Southfleet Road (North of the roundabout)	SB	89430-23185	166	216	50	30%	3.6	✓	✓	202	291	89	44%	5.7	✓	×
B255 between Mounts Road and A296	SB	27020-27008	1,200	976	-224	-19%	6.8	×	×	1,343	1,125	-217	-16%	6.2	×	×
A296 / St James' Lane Roundabout	SB	27506-22243	502	484	-17	-3%	0.8	✓	✓	581	606	25	4%	1.0	✓	✓
A282 southbound distributor between A2 and A296xA225	SB	81990-81898	401	524	122	30%	5.7	×	×	557	666	109	19%	4.4	×	✓
A282 southbound within the A296xA225 junction	SB	81905-81899	2,190	2,221	31	1%	0.7	✓	✓	3,735	3,694	-41	-1%	0.7	✓	✓
Gore Road	SB	22332-22334	168	157	-11	-7%	0.9	✓	✓	201	190	-11	-6%	0.8	✓	✓
Screenline 2 NB Summary	NB	-	5,801	5,623	-178	-3%		✓		8,224	8,152	-72	-1%		✓	
Screenline 2 SB Summary	SB	-	5,316	5,190	-126	-2%		✓		7,530	7,346	-184	-2%		✓	

D.3 Link Flow Validation across Screenlines – PM Peak

Table D. 7 Screenline Totals

Screenline	Dir	Cars only					Total (in vehicles)				
		Count	Model	Diff	% Diff	WebTAG Flow	Count	Model	Diff	% Diff	WebTAG Flow
Screenline 1	NB	2550	2,565	15	1%	✓	2,948	3,015	67	2%	✓
	SB	2430	2,562	132	5%	×	2,800	2,891	91	3%	✓
Screenline 2	NB	6976	6,823	-153	-2%	✓	8,902	8,775	-127	-1%	✓
	SB	9653	9,175	-478	-5%	✓	11,579	11,187	-392	-3%	✓

Table D. 8 Screenline No.1

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A227 Wrotham Road South of A2 Junction	NB	47131-82353	615	609	-6	-1%	0.2	✓	✓	733	747	14	2%	0.5	✓	✓
New barn Road	NB	26901-76743	343	276	-66	-19%	3.8	✓	✓	387	323	-65	-17%	3.4	✓	✓
B262 Station Road	NB	26896-26019	515	513	-2	0%	0.1	✓	✓	591	595	5	1%	0.2	✓	✓
B255 Bean Lane (south of A2 South Roundabout)	NB	26016-82952	305	348	42	14%	2.3	✓	✓	350	394	43	12%	2.2	✓	✓
B260 Green Street Green Road	NB	89426-22334	773	820	47	6%	1.7	✓	✓	886	956	70	8%	2.3	✓	✓
A227 Wrotham Road South of A2 Junction	SB	82353-47131	647	736	89	14%	3.4	✓	✓	771	836	65	8%	2.3	✓	✓
New barn Road	SB	76743-26901	457	430	-27	-6%	1.3	✓	✓	508	483	-25	-5%	1.1	✓	✓
B262 Station Road	SB	26019-26896	179	181	3	1%	0.2	✓	✓	205	208	3	1%	0.2	✓	✓
Park Corner Road	SB	76747-26897	75	39	-36	-48%	4.7	✓	✓	86	43	-43	-50%	5.3	✓	×
B255 Bean Lane (south of A2 South Roundabout)	SB	82952-26016	395	382	-13	-3%	0.6	✓	✓	453	438	-15	-3%	0.7	✓	✓
B260 Green Street Green Road	SB	22334-89426	678	794	116	17%	4.3	×	✓	778	883	105	14%	3.7	✓	✓
Screenline 1 NB Summary	NB	-	2,550	2,565	15	1%		✓		2,948	3,015	67	2%		✓	
Screenline 1 SB Summary	SB	-	2,430	2,562	132	5%		×		2,800	2,891	91	3%		✓	

Table D. 9 Screenline No.2

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A226 / B262 Roundabout	NB	28512-28544	461	358	-103	-22%	5.1	×	×	531	440	-91	-17%	4.1	✓	✓
A2260 / B259 Roundabout	NB	23185-89364	171	118	-53	-31%	4.4	✓	✓	240	157	-83	-35%	5.9	✓	×
Southfleet Road (North of the roundabout)	NB	23185-89430	295	321	26	9%	1.5	✓	✓	338	380	42	12%	2.2	✓	✓
A2 / B255 Bean North Roundabout	NB	83356-83359	1,798	1,714	-84	-5%	2.0	✓	✓	1,996	1,914	-82	-4%	1.8	✓	✓
A296 / St James' Lane Roundabout	NB	22243-27506	619	651	32	5%	1.3	✓	✓	693	770	77	11%	2.8	✓	✓

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A282 northbound within the A296xA225 junction	NB	82482-81904	2,346	2,247	-99	-4%	2.1	✓	✓	3,528	3,483	-45	-1%	0.8	✓	✓
A282 northbound distributor between A2 and A296xA225	NB	81887-88688	887	1,014	127	14%	4.1	✓	✓	1,100	1,154	54	5%	1.6	✓	✓
Gore Road	NB	22334-22332	400	402	2	0%	0.1	✓	✓	475	476	1	0%	0.1	✓	✓
A226 / B262 Roundabout	SB	28544-28512	640	492	-148	-23%	6.2	×	×	754	617	-137	-18%	5.2	×	×
A2260 / B259 Roundabout	SB	89364-23185	731	417	-314	-43%	13.1	×	×	801	455	-345	-43%	13.8	×	×
Southfleet Road (North of the roundabout)	SB	89430-23185	352	526	174	49%	8.3	×	×	404	613	209	52%	9.3	×	×
B255 between Mounts Road and A296	SB	27020-27008	2,008	1,758	-250	-12%	5.8	✓	×	2,134	1,930	-204	-10%	4.5	✓	✓
A296 / St James' Lane Roundabout	SB	27506-22243	822	859	36	4%	1.3	✓	✓	891	1,000	108	12%	3.5	✓	✓
A282 southbound distributor between A2 and A296xA225	SB	81990-81898	555	593	38	7%	1.6	✓	✓	693	691	-2	0%	0.1	✓	✓
A282 southbound within the A296xA225 junction	SB	81905-81899	4,191	4,154	-37	-1%	0.6	✓	✓	5,513	5,471	-41	-1%	0.6	✓	✓
Gore Road	SB	22332-22334	355	377	22	6%	1.1	✓	✓	389	409	20	5%	1.0	✓	✓
Screenline 2 NB Summary	NB	-	6,976	6,823	-153	-2%		✓		8,902	8,775	-127	-1%		✓	
Screenline 2 SB Summary	SB	-	9,653	9,175	-478	-5%		✓		11,579	11,187	-392	-3%		✓	

D.4 Link Flow Validation (Ad-hoc Counts)

Table D. 10 Link Flow Validation (Ad-hoc Counts) – AM Peak

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A2 eastbound access from A227	EB	81896-82352	405	361	-44	-11%	2.2	✓	✓	539	497	-42	-8%	1.8	✓	✓
A2 eastbound within the A227 junction	EB	82357-82352	2,372	2,377	5	0%	0.1	✓	✓	3,530	3,480	-51	-1%	0.9	✓	✓
A2 westbound within the A227 junction	WB	82354-82351	3,845	4,202	357	9%	5.6	✓	×	5,393	5,770	378	7%	5.1	✓	×
A2 westbound exit for A227	WB	82354-82353	287	188	-98	-34%	6.4	✓	×	392	275	-116	-30%	6.4	×	×
A2 eastbound exit for A227	EB	82357-81896	327	345	18	5%	1.0	✓	✓	443	470	27	6%	1.3	✓	✓
A2 westbound access from A227	WB	82353-82351	597	723	126	21%	4.9	×	✓	809	919	110	14%	3.7	✓	✓
A282 southbound between A206 and A296xA225	CW	82506-81905	3,114	3,043	-72	-2%	1.3	✓	✓	5,644	5,321	-322	-6%	4.4	✓	✓
A282 northbound between A296xA225 and A206	ACW	81904-82490	3,830	3,907	77	2%	1.2	✓	✓	5,692	5,776	84	1%	1.1	✓	✓
A2 eastbound between A2018 and M25xA282	EB	86156-86155	2,761	2,725	-36	-1%	0.7	✓	✓	3,688	3,630	-58	-2%	1.0	✓	✓
A2 westbound between M25xA282 and A2018	WB	86155-86156	3,680	3,620	-59	-2%	1.0	✓	✓	4,929	4,836	-93	-2%	1.3	✓	✓
M25 clockwise between J2 and J3	CW	82483-81879	3,551	3,551	0	0%	0.0	✓	✓	5,810	5,810	0	0%	0.0	✓	✓
M25 anti-clockwise between J3 and J2	ACW	82485-81886	3,680	3,680	0	0%	0.0	✓	✓	5,301	5,301	0	0%	0.0	✓	✓
A2 eastbound within the M25xA282 junction	EB	81881-81623	1,416	1,428	12	1%	0.3	✓	✓	1,851	1,818	-33	-2%	0.8	✓	✓
A2 westbound within the M25xA282 junction	WB	81625-81880	2,497	2,718	221	9%	4.3	✓	✓	3,307	3,548	240	7%	4.1	✓	✓

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
M25 anti-clockwise within J2	ACW	81886-82206	2,065	2,200	136	7%	2.9	✓	✓	3,004	3,150	146	5%	2.6	✓	✓
M25 clockwise within J2	CW	82209-81885	1,797	1,745	-52	-3%	1.2	✓	✓	3,281	3,226	-55	-2%	1.0	✓	✓
A282 southbound Dartford Crossing	CW	85027-24101	3,130	3,083	-46	-1%	0.8	✓	✓	5,795	5,517	-278	-5%	3.7	✓	✓
A282 northbound Dartford Crossing (western tunnel)	ACW	81914-75107	1,309	1,191	-119	-9%	3.4	✓	✓	2,272	2,198	-74	-3%	1.6	✓	✓
A282 northbound Dartford Crossing (eastern tunnel)	ACW	75108-75109	2,080	2,299	219	11%	4.7	✓	✓	3,095	3,149	54	2%	1.0	✓	✓
A206 Bob Dunn Way	SB	29802-83365	341	348	7	2%	0.4	✓	✓	568	573	5	1%	0.2	✓	✓
A206 Bob Dunn Way	NB	81915-29802	592	728	136	23%	5.3	×	×	934	1,086	152	16%	4.8	×	✓
A206 / B3228 East Roundabout	WB	82006-81991	293	293	0	0%	0.0	✓	✓	379	378	0	0%	0.0	✓	✓
A206 / B3228 East Roundabout	EB	81993-82006	107	107	0	0%	0.0	✓	✓	175	175	0	0%	0.0	✓	✓
A226 / B2174 Junction	WB	22305-22307	370	356	-14	-4%	0.7	✓	✓	455	445	-9	-2%	0.4	✓	✓
A226 / B2174 Junction	EB	22307-22305	172	174	2	1%	0.1	✓	✓	213	221	9	4%	0.6	✓	✓
A296 / B2500 / Gore Road Round	WB	22340-81997	341	340	-1	0%	0.1	✓	✓	447	479	33	7%	1.5	✓	✓
A296 / B2500 / Gore Road Round	EB	81997-22340	299	299	0	0%	0.0	✓	✓	359	401	42	12%	2.2	✓	✓
A226 Galley Hill Road, 200m east of High Street	EB	20118-23178	254	234	-20	-8%	1.3	✓	✓	295	284	-11	-4%	0.7	✓	✓
A226 Galley Hill Road, 200m east of High Street	WB	23178-20118	447	235	-212	-47%	11.5	×	×	509	307	-202	-40%	10.0	×	×
A226 / B262 Roundabout	SB	28512-28544	310	391	81	26%	4.3	✓	✓	403	478	75	19%	3.6	✓	✓
A226 / B262 Roundabout	NB	28544-28512	517	503	-14	-3%	0.6	✓	✓	642	644	2	0%	0.1	✓	✓
B262 / Dale Road Junction	WB	26896-47129	221	216	-5	-2%	0.3	✓	✓	272	282	10	4%	0.6	✓	✓
B262 / Dale Road Junction	EB	47129-26896	111	156	46	41%	3.9	✓	✓	135	196	60	45%	4.7	✓	✓
B260 / B262 Junction	EB	89412-26637	231	249	18	8%	1.1	✓	✓	309	310	1	0%	0.1	✓	✓
B260 / B262 Junction	WB	26637-89412	545	484	-61	-11%	2.7	✓	✓	698	585	-113	-16%	4.5	×	✓
B255 / B262 Junction	SB	47127-26632	68	91	22	33%	2.5	✓	✓	90	113	24	27%	2.4	✓	✓
B255 / B262 Junction	NB	26632-47127	163	211	48	30%	3.5	✓	✓	189	260	70	37%	4.7	✓	✓
Parsonage Lane	WB	29908-44053	453	555	101	22%	4.5	×	✓	557	686	128	23%	5.1	×	×
Parsonage Lane	EB	44053-29908	321	463	142	44%	7.2	×	×	395	548	153	39%	7.1	×	×
A225 Hawley Road	NB	26013-86727	395	420	25	6%	1.2	✓	✓	505	512	7	1%	0.3	✓	✓
A225 Hawley Road	SB	86727-26013	216	210	-6	-3%	0.4	✓	✓	294	275	-19	-6%	1.1	✓	✓
B255 / B262 Junction	EB	26637-26632	55	48	-7	-13%	1.0	✓	✓	72	57	-15	-21%	1.9	✓	✓
B255 / B262 Junction	WB	26632-26637	169	77	-92	-54%	8.3	✓	×	213	102	-110	-52%	8.8	×	×
A2 /A227 Roundabout South	SB	81896-82353	749	745	-4	-1%	0.1	✓	✓	949	978	28	3%	0.9	✓	✓
A2 /A227 Roundabout South	NB	82353-81896	591	488	-104	-18%	4.5	×	✓	728	643	-85	-12%	3.2	✓	✓
A206 / B3228 East Roundabout	NB	81908-27013	712	796	84	12%	3.1	✓	✓	890	1,061	171	19%	5.5	×	×
A206 / B3228 East Roundabout	SB	27013-81993	443	537	94	21%	4.2	✓	✓	632	723	91	14%	3.5	✓	✓

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A226 / B2174 Junction	SB	27028-27029	537	516	-21	-4%	0.9	✓	✓	671	611	-60	-9%	2.4	✓	✓
A226 / B2174 Junction	NB	27029-27028	685	658	-27	-4%	1.1	✓	✓	820	804	-16	-2%	0.6	✓	✓
A282 northbound distributor between A2 and A296xA225	ACW	81887-88688	773	827	54	7%	1.9	✓	✓	1,023	1,050	27	3%	0.8	✓	✓
M25 J2 clockwise exit	CW	81898-88690	844	770	-73	-9%	2.6	✓	✓	1,245	1,080	-165	-13%	4.9	✓	✓
B262 / Park Corner Rd	EB	47128-47129	103	125	23	22%	2.1	✓	✓	126	156	29	23%	2.5	✓	✓
B262 / Park Corner Rd	WB	47129-47128	222	190	-32	-15%	2.2	✓	✓	273	246	-26	-10%	1.6	✓	✓
A226/ B2175 Roundabout	SB	23177-23173	126	199	73	58%	5.7	✓	×	174	248	74	43%	5.1	✓	×
A226/ B2175 Roundabout	NB	23173-23177	341	222	-119	-35%	7.1	×	×	433	285	-149	-34%	7.9	×	×
B255 / Bluewater Roundabout	NB	27023-27025	682	644	-37	-5%	1.4	✓	✓	829	780	-50	-6%	1.7	✓	✓
B255 / Bluewater Roundabout	SB	27025-27023	777	704	-73	-9%	2.7	✓	✓	969	837	-132	-14%	4.4	✓	✓
A226 / B2174 Junction	EB	22341-22306	231	168	-63	-27%	4.5	✓	✓	285	212	-73	-26%	4.6	✓	✓
A226 / B2174 Junction	WB	22306-22341	431	548	116	27%	5.2	×	×	521	654	133	26%	5.5	×	×
A206 Crossways Blvd	EB	22250-27014	238	334	96	40%	5.7	✓	×	398	454	57	14%	2.8	✓	✓
A206 Crossways Blvd	WB	27014-22250	398	517	119	30%	5.6	×	×	573	620	47	8%	1.9	✓	✓

Table D. 11 Link Flow Validation (Ad-hoc Counts) – Inter Peak

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A2 eastbound access from A227	EB	81896-82352	341	331	-10	-3%	0.5	✓	✓	451	440	-11	-3%	0.5	✓	✓
A2 eastbound within the A227 junction	EB	82357-82352	2,222	2,293	71	3%	1.5	✓	✓	3,312	3,286	-26	-1%	0.5	✓	✓
A2 westbound within the A227 junction	WB	82354-82351	2,486	2,509	22	1%	0.4	✓	✓	3,622	3,624	2	0%	0.0	✓	✓
A2 westbound exit for A227	WB	82354-82353	326	267	-58	-18%	3.4	✓	✓	417	362	-55	-13%	2.8	✓	✓
A2 eastbound exit for A227	EB	82357-81896	454	481	26	6%	1.2	✓	✓	593	640	47	8%	1.9	✓	✓
A2 westbound access from A227	WB	82353-82351	457	469	13	3%	0.6	✓	✓	605	621	15	3%	0.6	✓	✓
A282 southbound between A206 and A296xA225	CW	82506-81905	2,411	2,462	51	2%	1.0	✓	✓	4,076	4,008	-68	-2%	1.1	✓	✓
A282 northbound between A296xA225 and A206	ACW	81904-82490	2,488	2,526	39	2%	0.8	✓	✓	4,332	4,440	108	2%	1.6	✓	✓
A2 eastbound between A2018 and M25xA282	EB	86156-86155	2,252	2,262	11	0%	0.2	✓	✓	3,120	3,117	-3	0%	0.0	✓	✓
A2 westbound between M25xA282 and A2018	WB	86155-86156	2,088	2,104	16	1%	0.4	✓	✓	2,829	2,904	74	3%	1.4	✓	✓
M25 clockwise between J2 and J3	CW	82483-81879	2,476	2,476	0	0%	0.0	✓	✓	3,832	3,833	1	0%	0.0	✓	✓
M25 anti-clockwise between J3 and J2	ACW	82485-81886	2,477	2,477	0	0%	0.0	✓	✓	4,106	4,106	0	0%	0.0	✓	✓
A2 eastbound within the M25xA282 junction	EB	81881-81623	1,430	1,436	6	0%	0.2	✓	✓	1,890	1,891	1	0%	0.0	✓	✓
A2 westbound within the M25xA282 junction	WB	81625-81880	1,255	1,369	114	9%	3.2	✓	✓	1,651	1,799	148	9%	3.6	✓	✓
M25 anti-clockwise within J2	ACW	81886-82206	1,353	1,364	11	1%	0.3	✓	✓	2,375	2,476	100	4%	2.0	✓	✓

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
M25 clockwise within J2	CW	82209-81885	1,310	1,359	49	4%	1.3	✓	✓	2,225	2,230	5	0%	0.1	✓	✓
A282 southbound Dartford Crossing	CW	85027-24101	2,363	2,505	143	6%	2.9	✓	✓	3,969	4,012	43	1%	0.7	✓	✓
A282 northbound Dartford Crossing (western tunnel)	ACW	81914-75107	1,006	884	-122	-12%	4.0	✓	✓	1,880	1,799	-81	-4%	1.9	✓	✓
A282 northbound Dartford Crossing (eastern tunnel)	ACW	75108-75109	1,443	1,570	128	9%	3.3	✓	✓	2,438	2,430	-8	0%	0.2	✓	✓
A206 Bob Dunn Way	SB	29802-83365	283	302	18	6%	1.1	✓	✓	504	515	11	2%	0.5	✓	✓
A206 Bob Dunn Way	NB	81915-29802	322	323	1	0%	0.0	✓	✓	560	654	93	17%	3.8	✓	✓
A206 / B3228 East Roundabout	WB	82006-81991	164	161	-3	-2%	0.2	✓	✓	222	219	-3	-1%	0.2	✓	✓
A206 / B3228 East Roundabout	EB	81993-82006	141	141	0	0%	0.0	✓	✓	186	187	1	1%	0.1	✓	✓
A226 / B2174 Junction	WB	22305-22307	379	335	-44	-12%	2.3	✓	✓	451	424	-27	-6%	1.3	✓	✓
A226 / B2174 Junction	EB	22307-22305	303	284	-19	-6%	1.1	✓	✓	366	376	10	3%	0.5	✓	✓
A296 / B2500 / Gore Road Round	WB	22340-81997	307	257	-50	-16%	3.0	✓	✓	378	333	-45	-12%	2.4	✓	✓
A296 / B2500 / Gore Road Round	EB	81997-22340	372	369	-3	-1%	0.2	✓	✓	461	466	5	1%	0.3	✓	✓
A226 Galley Hill Road, 200m east of High Street	EB	20118-23178	290	232	-57	-20%	3.6	✓	✓	344	288	-57	-16%	3.2	✓	✓
A226 Galley Hill Road, 200m east of High Street	WB	23178-20118	337	265	-73	-22%	4.2	✓	✓	392	321	-71	-18%	3.8	✓	✓
A226 / B262 Roundabout	SB	28512-28544	354	304	-50	-14%	2.8	✓	✓	442	397	-44	-10%	2.2	✓	✓
A226 / B262 Roundabout	NB	28544-28512	451	406	-45	-10%	2.2	✓	✓	558	515	-43	-8%	1.9	✓	✓
B262 / Dale Road Junction	WB	26896-47129	142	230	88	62%	6.5	✓	×	161	268	107	66%	7.3	×	×
B262 / Dale Road Junction	EB	47129-26896	155	276	120	77%	8.2	×	×	180	322	141	78%	8.9	×	×
B260 / B262 Junction	EB	89412-26637	292	311	19	6%	1.1	✓	✓	383	388	5	1%	0.3	✓	✓
B260 / B262 Junction	WB	26637-89412	328	318	-10	-3%	0.6	✓	✓	418	388	-30	-7%	1.5	✓	✓
B255 / B262 Junction	SB	47127-26632	116	125	10	8%	0.9	✓	✓	139	152	12	9%	1.0	✓	✓
B255 / B262 Junction	NB	26632-47127	136	142	6	4%	0.5	✓	✓	158	164	6	4%	0.4	✓	✓
Parsonage Lane	WB	29908-44053	259	327	68	26%	4.0	✓	✓	316	415	99	31%	5.2	✓	×
Parsonage Lane	EB	44053-29908	318	418	100	31%	5.2	✓	×	387	524	137	35%	6.4	×	×
A225 Hawley Road	NB	26013-86727	341	374	34	10%	1.8	✓	✓	423	448	25	6%	1.2	✓	✓
A225 Hawley Road	SB	86727-26013	334	365	31	9%	1.6	✓	✓	407	415	8	2%	0.4	✓	✓
B255 / B262 Junction	EB	26637-26632	88	64	-24	-27%	2.8	✓	✓	104	73	-31	-30%	3.3	✓	✓
B255 / B262 Junction	WB	26632-26637	84	45	-39	-47%	4.9	✓	✓	100	57	-43	-43%	4.9	✓	✓
A2 /A227 Roundabout South	SB	81896-82353	672	635	-37	-6%	1.5	✓	✓	818	842	24	3%	0.8	✓	✓
A2 /A227 Roundabout South	NB	82353-81896	547	475	-72	-13%	3.2	✓	✓	651	627	-24	-4%	1.0	✓	✓
A206 / B3228 East Roundabout	NB	81908-27013	433	543	109	25%	4.9	×	✓	587	788	200	34%	7.6	×	×
A206 / B3228 East Roundabout	SB	27013-81993	443	400	-43	-10%	2.1	✓	✓	616	581	-36	-6%	1.5	✓	✓
A226 / B2174 Junction	SB	27028-27029	705	670	-34	-5%	1.3	✓	✓	832	784	-48	-6%	1.7	✓	✓

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A226 / B2174 Junction	NB	27029-27028	660	1,104	445	67%	15.0	×	×	810	1,268	458	57%	14.2	×	×
A282 northbound distributor between A2 and A296xA225	ACW	81887-88688	466	547	80	17%	3.6	✓	✓	653	684	32	5%	1.2	✓	✓
M25 J2 clockwise exit	CW	81898-88690	628	733	104	17%	4.0	×	✓	919	1,018	98	11%	3.2	✓	✓
B262 / Park Corner Rd	EB	47128-47129	155	173	18	11%	1.4	✓	✓	181	208	26	15%	1.9	✓	✓
B262 / Park Corner Rd	WB	47129-47128	139	138	0	0%	0.0	✓	✓	159	168	9	6%	0.7	✓	✓
A226/ B2175 Roundabout	SB	23177-23173	247	242	-5	-2%	0.3	✓	✓	313	306	-7	-2%	0.4	✓	✓
A226/ B2175 Roundabout	NB	23173-23177	278	270	-8	-3%	0.5	✓	✓	345	331	-13	-4%	0.7	✓	✓
B255 / Bluewater Roundabout	NB	27023-27025	659	1,072	412	63%	14.0	×	×	809	1,223	414	51%	13.0	×	×
B255 / Bluewater Roundabout	SB	27025-27023	746	782	36	5%	1.3	✓	✓	895	913	18	2%	0.6	✓	✓
A226 / B2174 Junction	EB	22341-22306	404	312	-92	-23%	4.9	✓	✓	479	397	-82	-17%	3.9	✓	✓
A226 / B2174 Junction	WB	22306-22341	435	476	42	10%	2.0	✓	✓	515	566	51	10%	2.2	✓	✓
A206 Crossways Blvd	EB	22250-27014	286	419	133	47%	7.1	×	×	406	522	116	29%	5.4	×	×
A206 Crossways Blvd	WB	27014-22250	302	323	21	7%	1.2	✓	✓	441	456	15	3%	0.7	✓	✓

Table D. 12 Link Flow Validation (Ad-hoc Counts) – PM Peak

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A2 eastbound access from A227	EB	81896-82352	620	585	-35	-6%	1.4	✓	✓	750	722	-28	-4%	1.0	✓	✓
A2 eastbound within the A227 junction	EB	82357-82352	5,584	5,546	-37	-1%	0.5	✓	✓	6,905	6,778	-127	-2%	1.5	✓	✓
A2 westbound within the A227 junction	WB	82354-82351	3,307	3,229	-78	-2%	1.4	✓	✓	4,172	4,076	-95	-2%	1.5	✓	✓
A2 westbound exit for A227	WB	82354-82353	538	459	-80	-15%	3.6	✓	✓	635	548	-87	-14%	3.6	✓	✓
A2 eastbound exit for A227	EB	82357-81896	877	874	-3	0%	0.1	✓	✓	1,044	1,027	-17	-2%	0.5	✓	✓
A2 westbound access from A227	WB	82353-82351	545	544	-1	0%	0.0	✓	✓	648	672	24	4%	0.9	✓	✓
A282 southbound between A206 and A296xA225	CW	82506-81905	4,638	4,612	-26	-1%	0.4	✓	✓	6,086	5,977	-108	-2%	1.4	✓	✓
A282 northbound between A296xA225 and A206	ACW	81904-82490	2,962	2,944	-18	-1%	0.3	✓	✓	4,386	4,322	-64	-1%	1.0	✓	✓
A2 eastbound between A2018 and M25xA282	EB	86156-86155	4,371	4,452	81	2%	1.2	✓	✓	5,258	5,309	51	1%	0.7	✓	✓
A2 westbound between M25xA282 and A2018	WB	86155-86156	3,362	3,339	-23	-1%	0.4	✓	✓	3,996	4,012	16	0%	0.2	✓	✓
M25 clockwise between J2 and J3	CW	82483-81879	3,872	3,869	-3	0%	0.0	✓	✓	4,913	4,909	-3	0%	0.0	✓	✓
M25 anti-clockwise between J3 and J2	ACW	82485-81886	3,248	3,249	0	0%	0.0	✓	✓	4,539	4,540	0	0%	0.0	✓	✓
A2 eastbound within the M25xA282 junction	EB	81881-81623	3,154	2,973	-181	-6%	3.3	✓	✓	3,771	3,530	-241	-6%	4.0	✓	✓
A2 westbound within the M25xA282 junction	WB	81625-81880	2,033	2,192	159	8%	3.5	✓	✓	2,406	2,570	164	7%	3.3	✓	✓
M25 anti-clockwise within J2	ACW	81886-82206	1,518	1,391	-128	-8%	3.3	✓	✓	2,223	2,205	-17	-1%	0.4	✓	✓
M25 clockwise within J2	CW	82209-81885	2,250	2,150	-100	-4%	2.1	✓	✓	2,986	2,816	-169	-6%	3.1	✓	✓

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A282 southbound Dartford Crossing	CW	85027-24101	4,116	3,843	-273	-7%	4.3	✓	✓	5,659	5,238	-421	-7%	5.7	×	×
A282 northbound Dartford Crossing (western tunnel)	ACW	81914-75107	1,547	1,474	-73	-5%	1.9	✓	✓	2,279	2,238	-41	-2%	0.9	✓	✓
A282 northbound Dartford Crossing (eastern tunnel)	ACW	75108-75109	1,959	2,031	72	4%	1.6	✓	✓	2,781	2,791	10	0%	0.2	✓	✓
A206 Bob Dunn Way	SB	29802-83365	528	596	67	13%	2.8	✓	✓	697	775	79	11%	2.9	✓	✓
A206 Bob Dunn Way	NB	81915-29802	544	552	8	1%	0.3	✓	✓	706	723	17	2%	0.6	✓	✓
A206 / B3228 East Roundabout	WB	82006-81991	272	274	3	1%	0.2	✓	✓	320	323	4	1%	0.2	✓	✓
A206 / B3228 East Roundabout	EB	81993-82006	181	176	-5	-3%	0.3	✓	✓	213	210	-3	-1%	0.2	✓	✓
A226 / B2174 Junction	WB	22305-22307	484	443	-42	-9%	1.9	✓	✓	540	516	-24	-4%	1.0	✓	✓
A226 / B2174 Junction	EB	22307-22305	570	511	-59	-10%	2.5	✓	✓	627	589	-37	-6%	1.5	✓	✓
A296 / B2500 / Gore Road Round	WB	22340-81997	534	550	15	3%	0.7	✓	✓	593	665	71	12%	2.8	✓	✓
A296 / B2500 / Gore Road Round	EB	81997-22340	456	473	17	4%	0.8	✓	✓	533	553	20	4%	0.8	✓	✓
A226 Galley Hill Road, 200m east of High Street	EB	20118-23178	488	359	-129	-26%	6.3	×	×	528	405	-123	-23%	5.7	×	×
A226 Galley Hill Road, 200m east of High Street	WB	23178-20118	435	392	-43	-10%	2.1	✓	✓	463	432	-31	-7%	1.5	✓	✓
A226 / B262 Roundabout	SB	28512-28544	461	358	-103	-22%	5.1	×	×	531	440	-91	-17%	4.1	✓	✓
A226 / B262 Roundabout	NB	28544-28512	640	492	-148	-23%	6.2	×	×	754	617	-137	-18%	5.2	×	×
B262 / Dale Road Junction	WB	26896-47129	141	181	40	28%	3.2	✓	✓	156	208	52	34%	3.9	✓	✓
B262 / Dale Road Junction	EB	47129-26896	410	542	132	32%	6.0	×	×	495	629	134	27%	5.7	×	×
B260 / B262 Junction	EB	89412-26637	712	733	21	3%	0.8	✓	✓	829	821	-8	-1%	0.3	✓	✓
B260 / B262 Junction	WB	26637-89412	368	368	0	0%	0.0	✓	✓	429	423	-6	-1%	0.3	✓	✓
B255 / B262 Junction	SB	47127-26632	232	283	51	22%	3.2	✓	✓	257	328	70	27%	4.1	✓	✓
B255 / B262 Junction	NB	26632-47127	195	229	34	17%	2.3	✓	✓	213	255	42	20%	2.8	✓	✓
Parsonage Lane	WB	29908-44053	372	550	178	48%	8.3	×	×	428	622	194	45%	8.5	×	×
Parsonage Lane	EB	44053-29908	753	927	174	23%	6.0	×	×	865	1,134	270	31%	8.5	×	×
A225 Hawley Road	NB	26013-86727	432	449	17	4%	0.8	✓	✓	525	553	28	5%	1.2	✓	✓
A225 Hawley Road	SB	86727-26013	500	506	7	1%	0.3	✓	✓	567	558	-9	-2%	0.4	✓	✓
B255 / B262 Junction	EB	26637-26632	314	266	-49	-16%	2.9	✓	✓	374	294	-80	-21%	4.4	✓	✓
B255 / B262 Junction	WB	26632-26637	96	48	-47	-50%	5.6	✓	×	114	55	-59	-52%	6.4	✓	×
A2 /A227 Roundabout South	SB	81896-82353	958	943	-14	-1%	0.5	✓	✓	1,066	1,101	34	3%	1.0	✓	✓
A2 /A227 Roundabout South	NB	82353-81896	834	731	-104	-12%	3.7	✓	✓	972	887	-85	-9%	2.8	✓	✓
A206 / B3228 East Roundabout	NB	81908-27013	368	432	64	17%	3.2	✓	✓	458	527	69	15%	3.1	✓	✓
A206 / B3228 East Roundabout	SB	27013-81993	1,116	1,505	389	35%	10.7	×	×	1,250	1,657	408	33%	10.7	×	×
A226 / B2174 Junction	SB	27028-27029	1,228	1,097	-131	-11%	3.8	✓	✓	1,341	1,223	-118	-9%	3.3	✓	✓
A226 / B2174 Junction	NB	27029-27028	1,055	1,425	370	35%	10.5	×	×	1,230	1,572	342	28%	9.1	×	×

Location	Dir	SATURN Link	Cars only							Total (in vehicles)						
			Count	Model	Diff	% Diff	GEH	WebTAG		Count	Model	Diff	% Diff	GEH	WebTAG	
								Flow	GEH						Flow	GEH
A282 northbound distributor between A2 and A296xA225	ACW	81887-88688	887	1,014	127	14%	4.1	✓	✓	1,100	1,154	54	5%	1.6	✓	✓
M25 J2 clockwise exit	CW	81898-88690	970	1,129	160	16%	4.9	×	✓	1,221	1,352	130	11%	3.6	✓	✓
B262 / Park Corner Rd	EB	47128-47129	414	436	22	5%	1.0	✓	✓	497	501	5	1%	0.2	✓	✓
B262 / Park Corner Rd	WB	47129-47128	139	141	2	1%	0.1	✓	✓	153	163	11	7%	0.8	✓	✓
A226/ B2175 Roundabout	SB	23177-23173	422	380	-43	-10%	2.1	✓	✓	480	433	-47	-10%	2.2	✓	✓
A226/ B2175 Roundabout	NB	23173-23177	314	371	57	18%	3.1	✓	✓	351	415	64	18%	3.3	✓	✓
B255 / Bluewater Roundabout	NB	27023-27025	1,045	1,392	347	33%	9.9	×	×	1,224	1,533	309	25%	8.3	×	×
B255 / Bluewater Roundabout	SB	27025-27023	1,184	1,141	-43	-4%	1.3	✓	✓	1,275	1,282	7	1%	0.2	✓	✓
A226 / B2174 Junction	EB	22341-22306	684	590	-94	-14%	3.7	✓	✓	748	675	-72	-10%	2.7	✓	✓
A226 / B2174 Junction	WB	22306-22341	614	623	9	2%	0.4	✓	✓	685	695	10	1%	0.4	✓	✓
A206 Crossways Blvd	EB	22250-27014	382	419	37	10%	1.9	✓	✓	493	481	-12	-2%	0.5	✓	✓
A206 Crossways Blvd	WB	27014-22250	486	592	106	22%	4.6	×	✓	549	665	116	21%	4.7	×	✓

Appendix E. Journey Time Plots

E.1 Journey Time Sections

Figure E. 1 R01 Sections

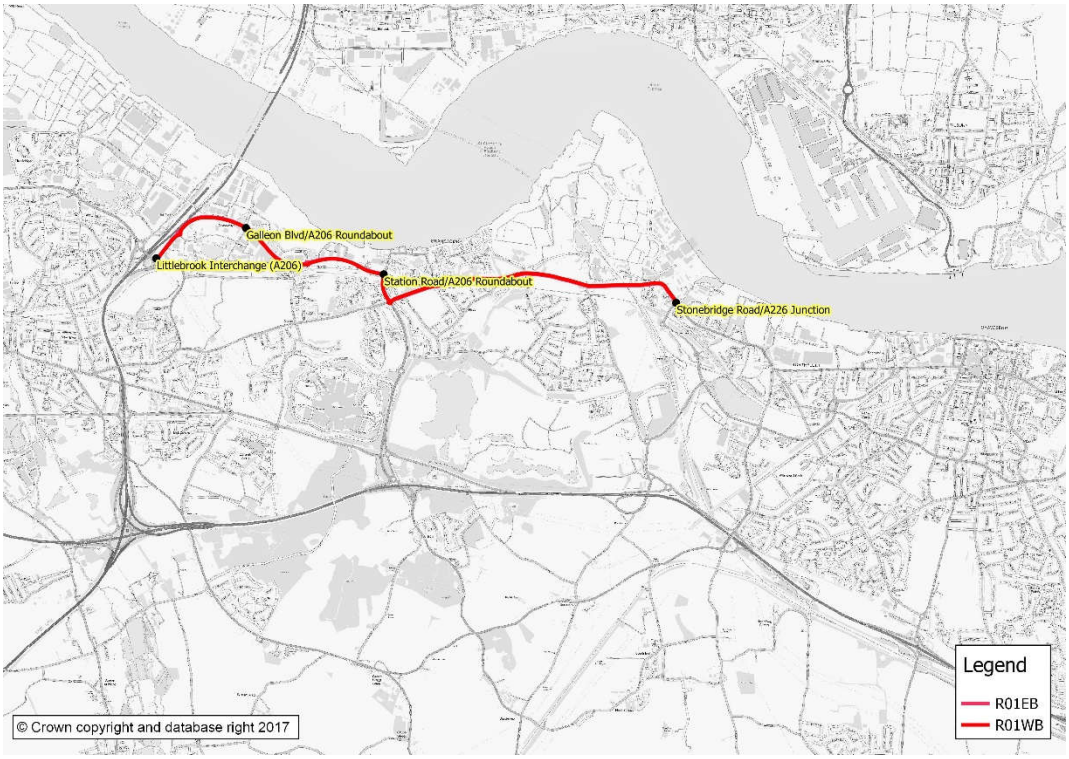


Figure E. 2 R02 Sections

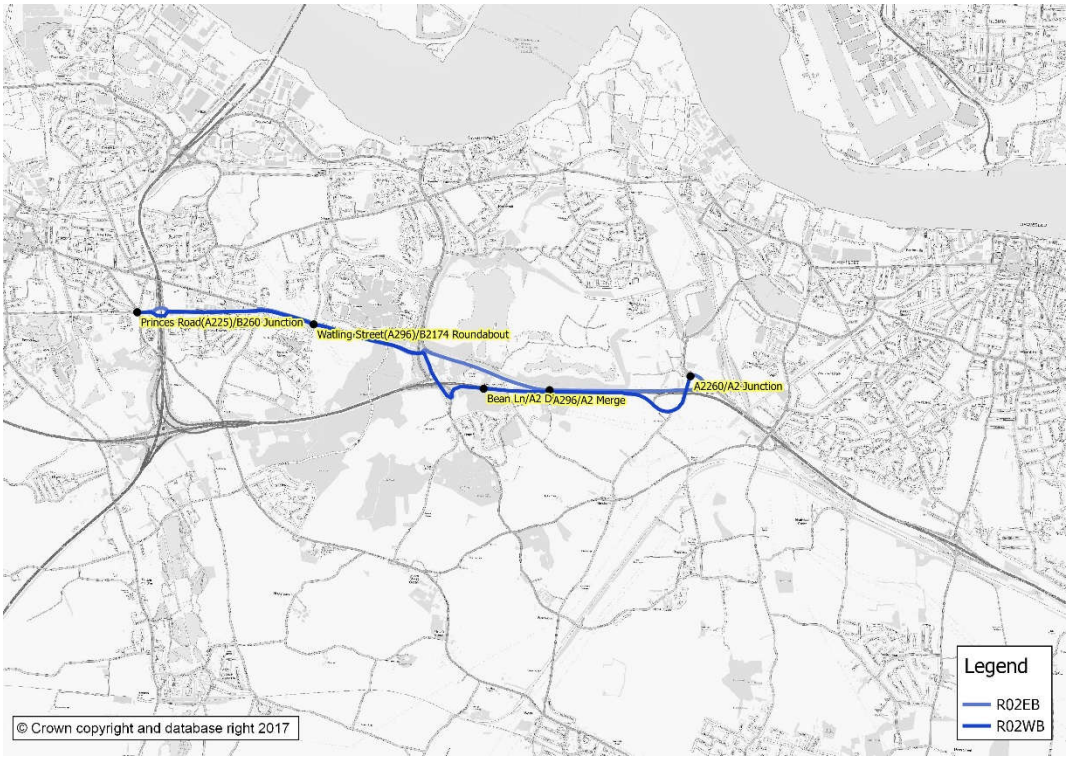


Figure E. 3 R03 Sections

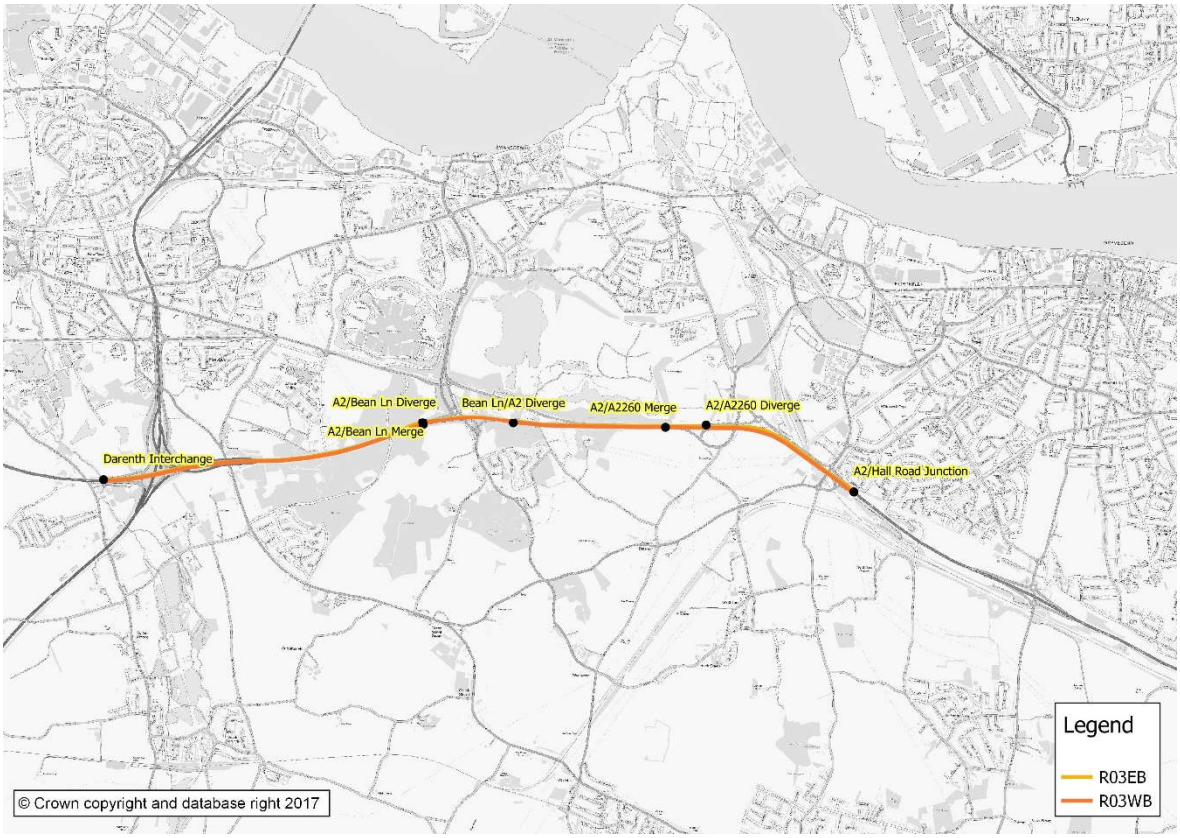


Figure E. 4 R04 Sections

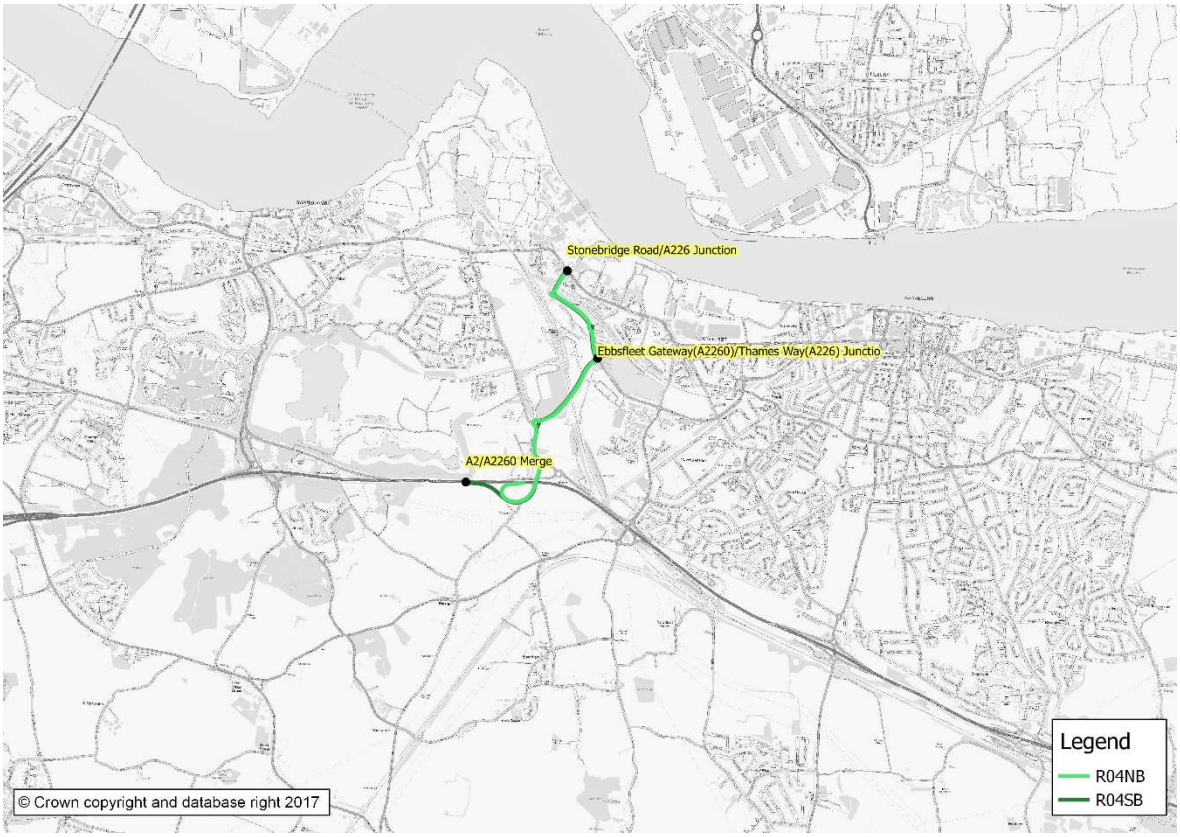


Figure E. 5 R05 Sections

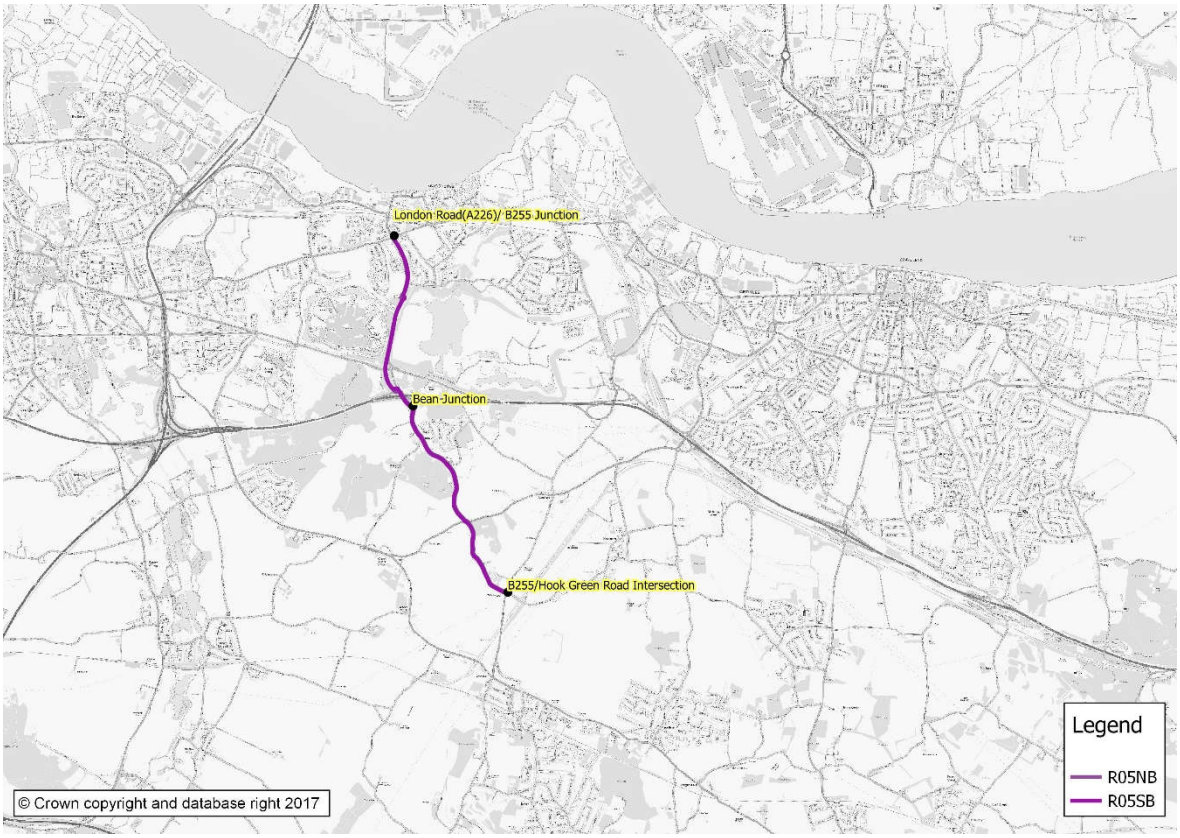
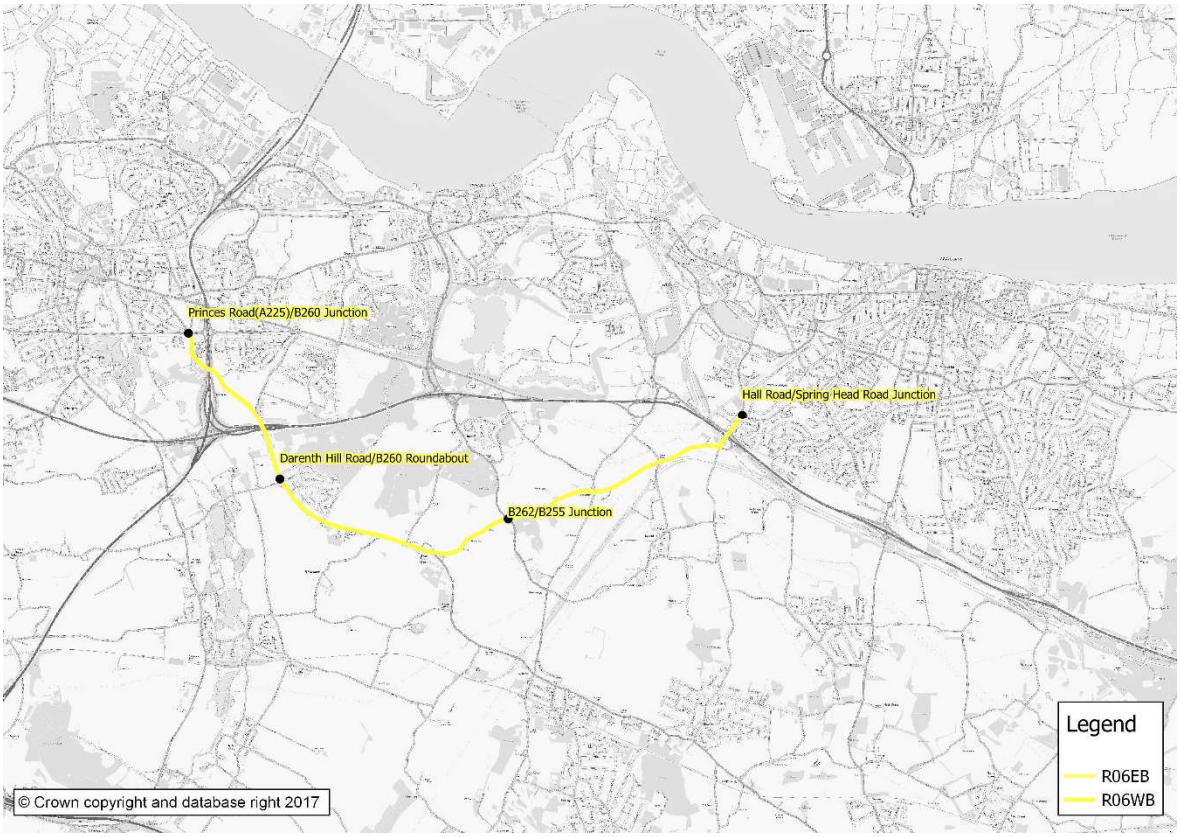
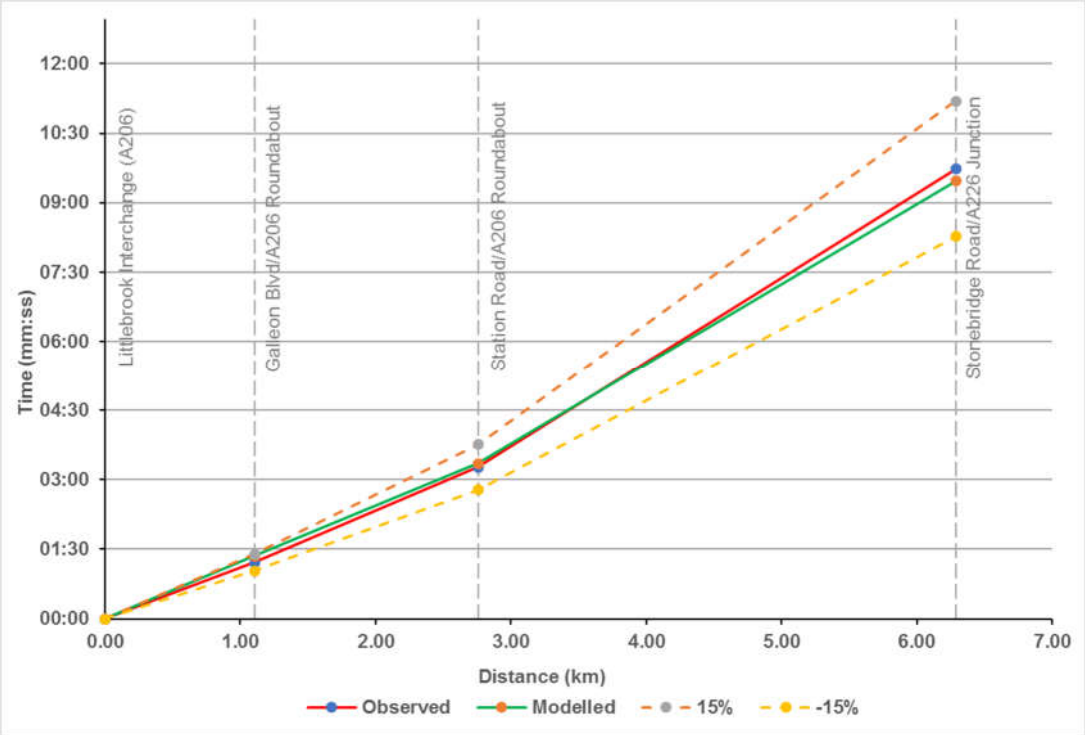


Figure E. 6 R06 Sections



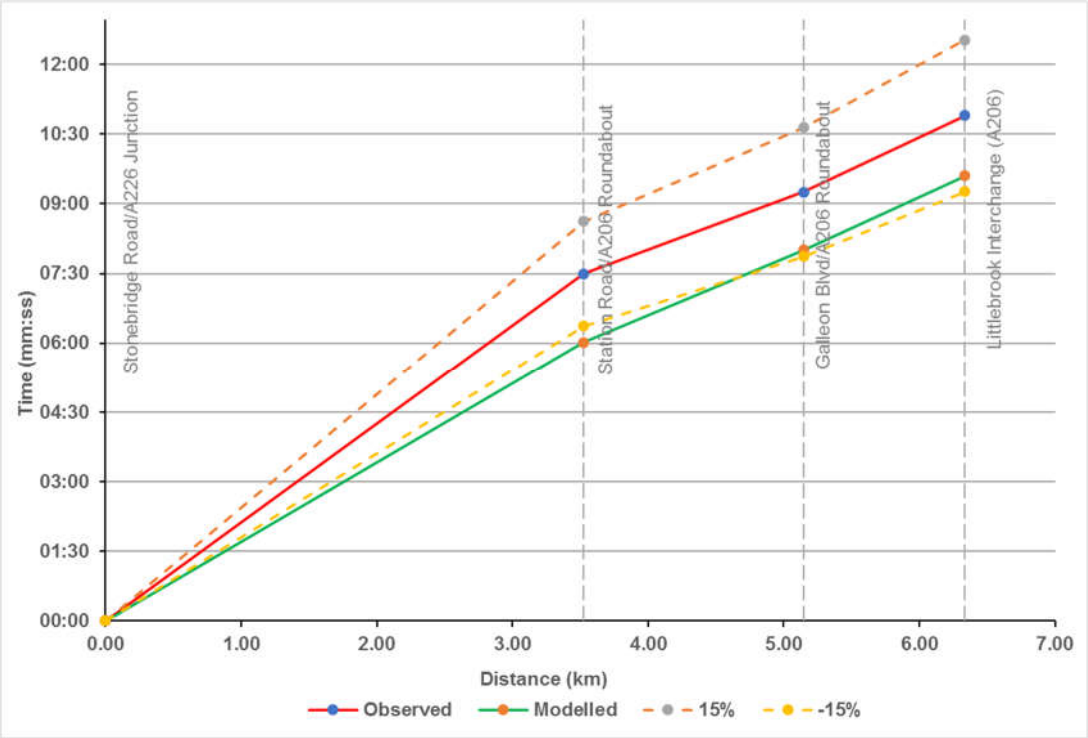
E.2 Journey Time Plots – AM Peak

Figure E. 7 R01EB - Littlebrook Interchange (A206) to Stonebridge Road/A226 Junction



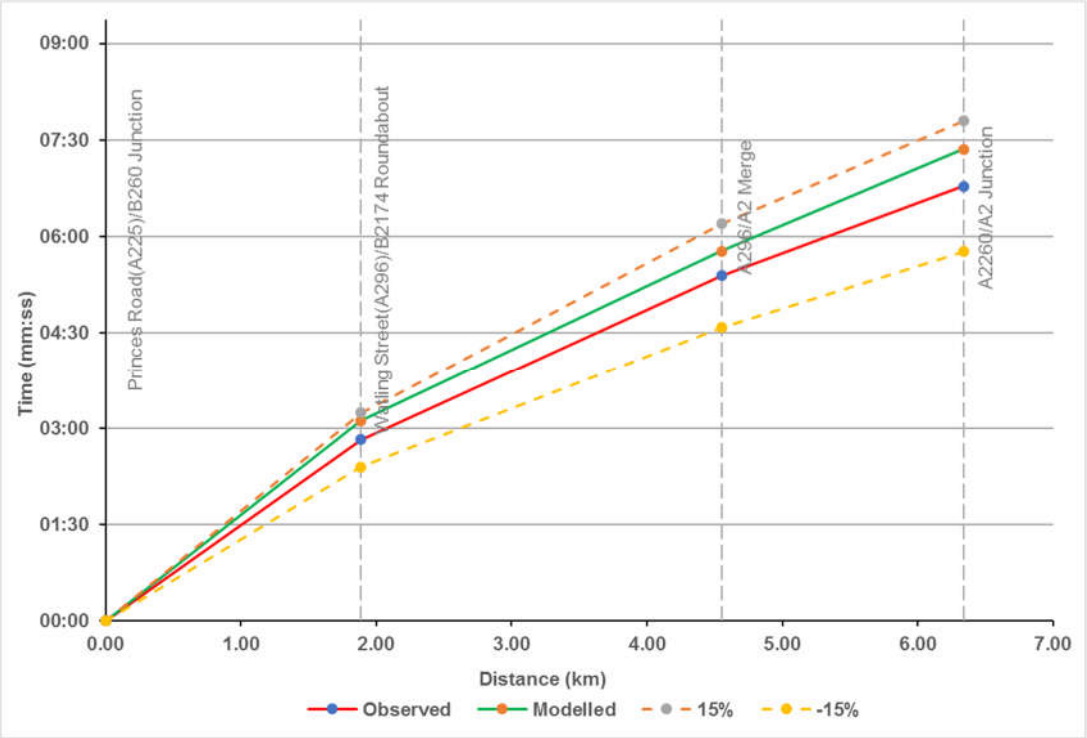
R01EB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Littlebrook Interchange (A206)	0.00	-	-
Galleon Blvd/A206 Roundabout	1.11	01:13	01:21
Station Road/A206 Roundabout	2.76	03:16	03:21
Stonebridge Road/A226 Junction	6.29	09:43	09:28

Figure E. 8 R01WB - Stonebridge Road/A226 Junction to Littlebrook Interchange (A206)



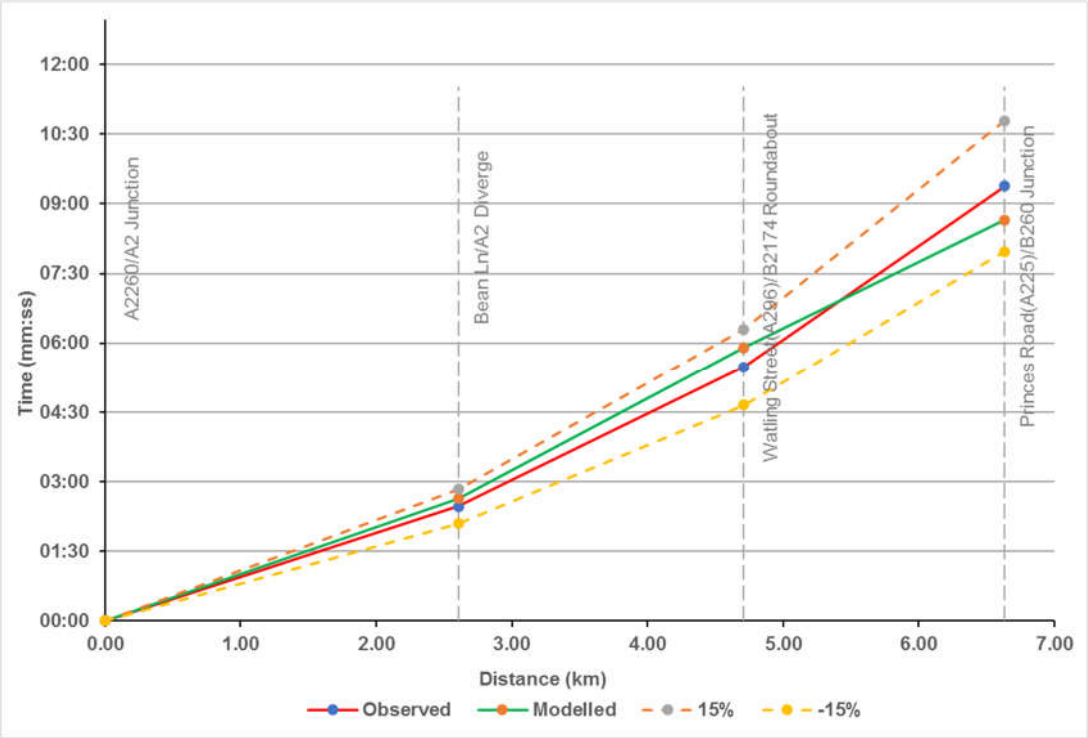
R01WB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Stonebridge Road/A226 Junction	0.00	-	-
Station Road/A206 Roundabout	3.52	07:29	06:01
Galleon blvd/A206 Roundabout	5.15	09:15	08:00
Littlebrook Interchange (A206)	6.33	10:53	09:36

Figure E. 9 R02EB - Princes Road(A225)/B260 Junction to A2260/A2 Junction



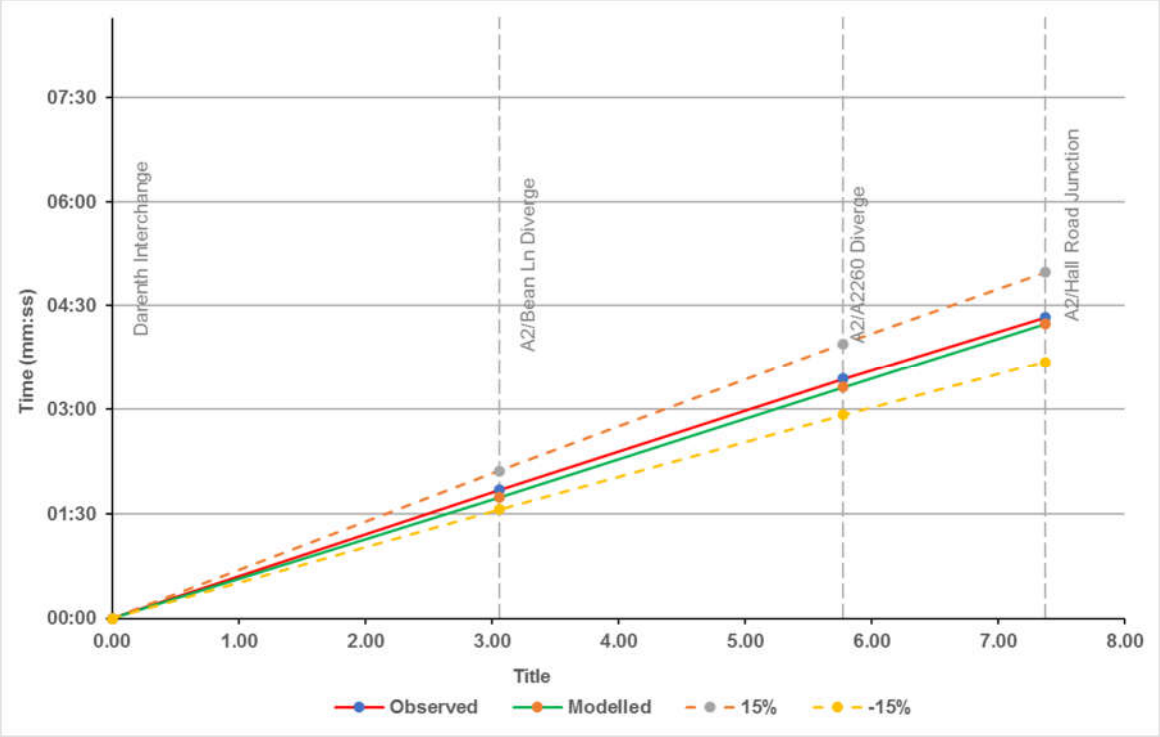
R02EB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Princes Road(A225)/B260 Junction	0.00	-	-
Watling Street(A296)/B2174 Roundabout	1.89	02:49	03:07
A296/A2 Merge	4.55	05:23	05:46
A2260/A2 Junction	6.34	06:47	07:21

Figure E. 10 R02WB - A2260/A2 Junction to Princes Road(A225)/B260 Junction



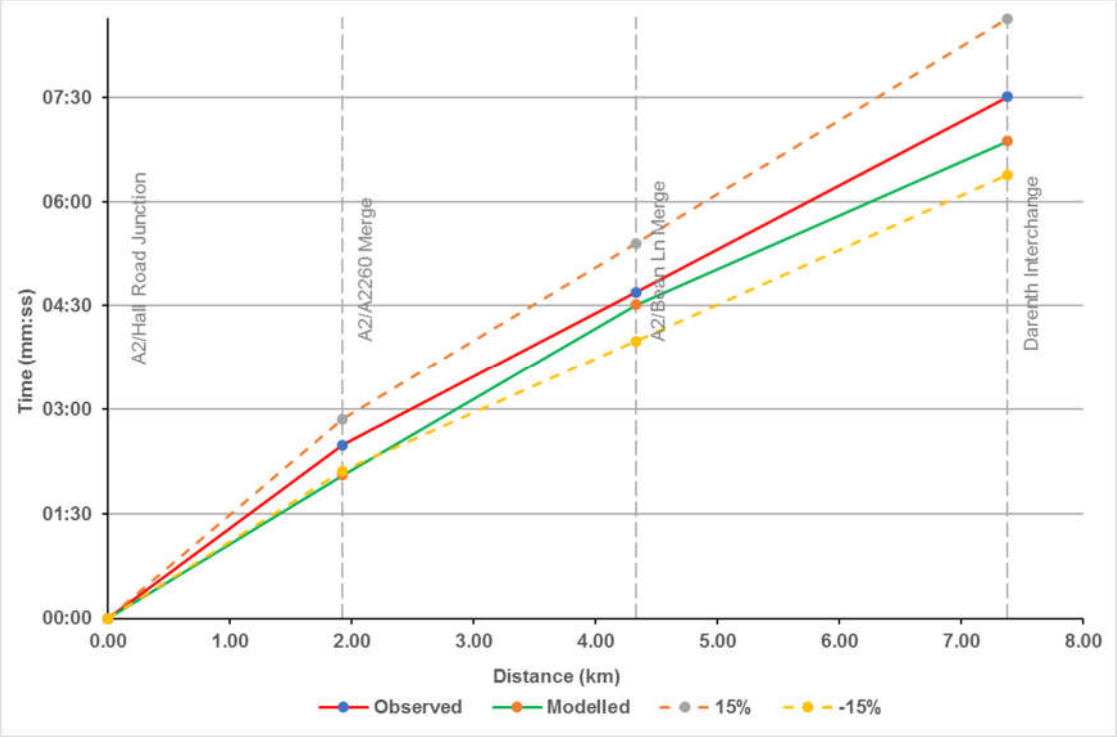
R02WB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
A2260/A2 Junction	0.00	-	-
Bean Ln/A2 Diverge	2.61	02:28	02:38
Watling Street(A296)/B2174 Roundabout	4.71	05:28	05:54
Princes Road(A225)/B260 Junction	6.63	09:22	08:39

Figure E. 11 R03EB - Darenth Interchange to A2/Hall Road Junction



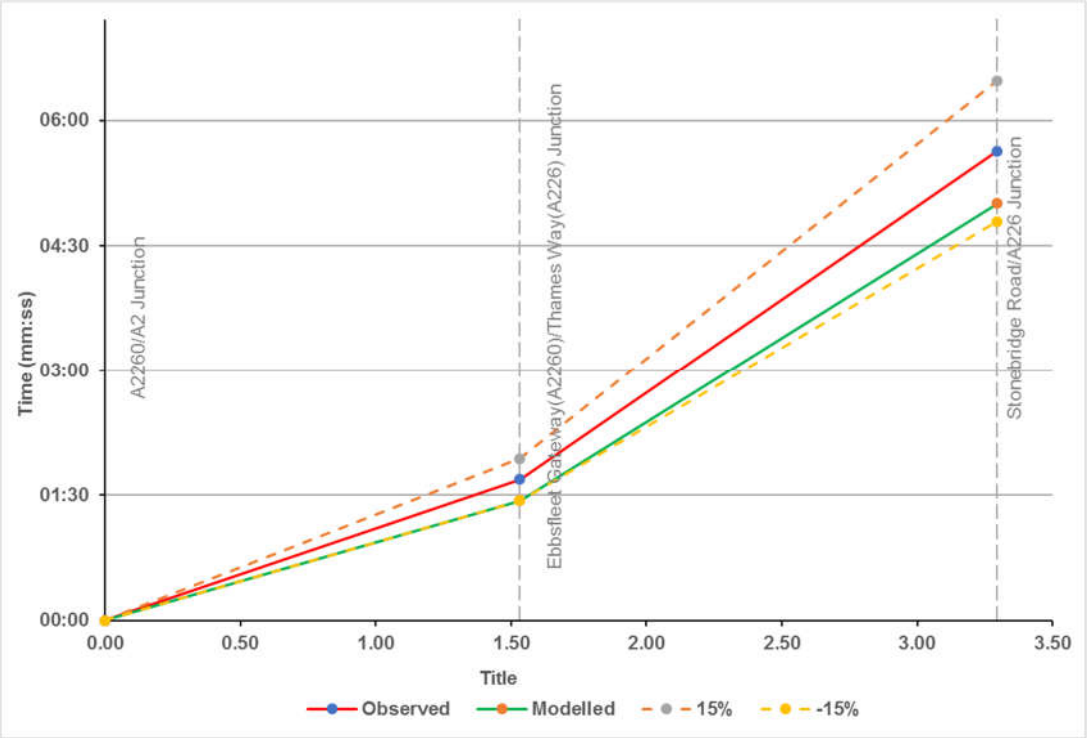
R03EB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Darenth Interchange	0.00	-	-
A2/Bean Ln Diverge	3.06	01:50	01:44
A2/A2260 Diverge	5.78	03:26	03:19
A2/Hall Road Junction	7.37	04:20	04:14

Figure E. 12 R03WB - A2/Hall Road Junction to Darenth Interchange



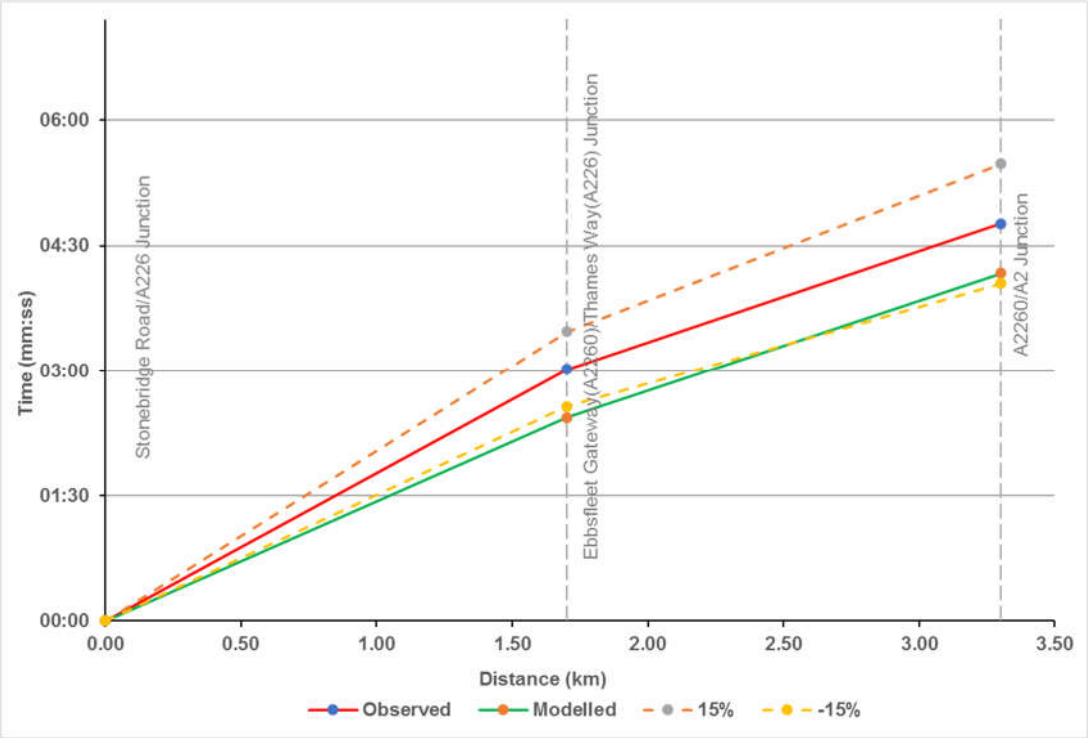
R03WB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
A2/Hall Road Junction	0.00	-	-
A2/A2260 Merge	1.92	02:29	02:03
A2/Bean Ln Merge	4.33	04:42	04:31
Darenth Interchange	7.38	07:30	06:52

Figure E. 13 R04NB - A2260/A2 Junction to Stonebridge Road/A226 Junction



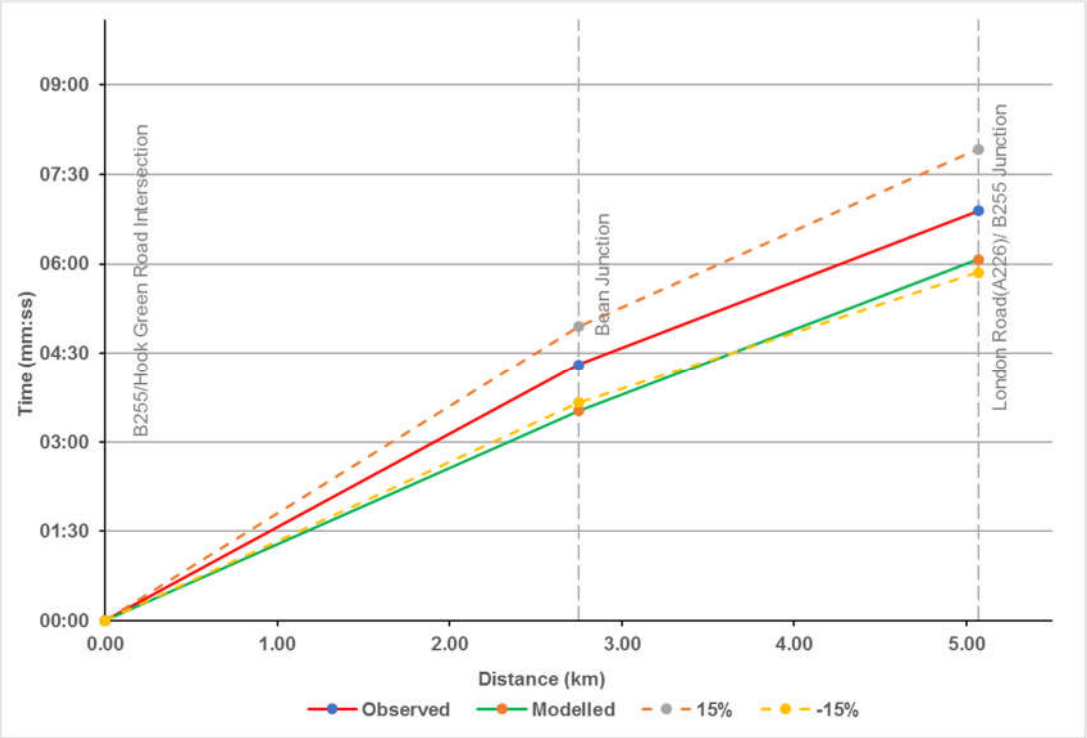
R04NB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
A2260/A2 Junction	0.00	-	-
Ebbsfleet Gateway(A2260)/Thames Way(A226) Junction	1.53	01:41	01:26
Stonebridge Road/A226 Junction	3.30	05:38	05:00

Figure E. 14 R04SB - Stonebridge Road/A226 Junction to A2260/A2 Junction



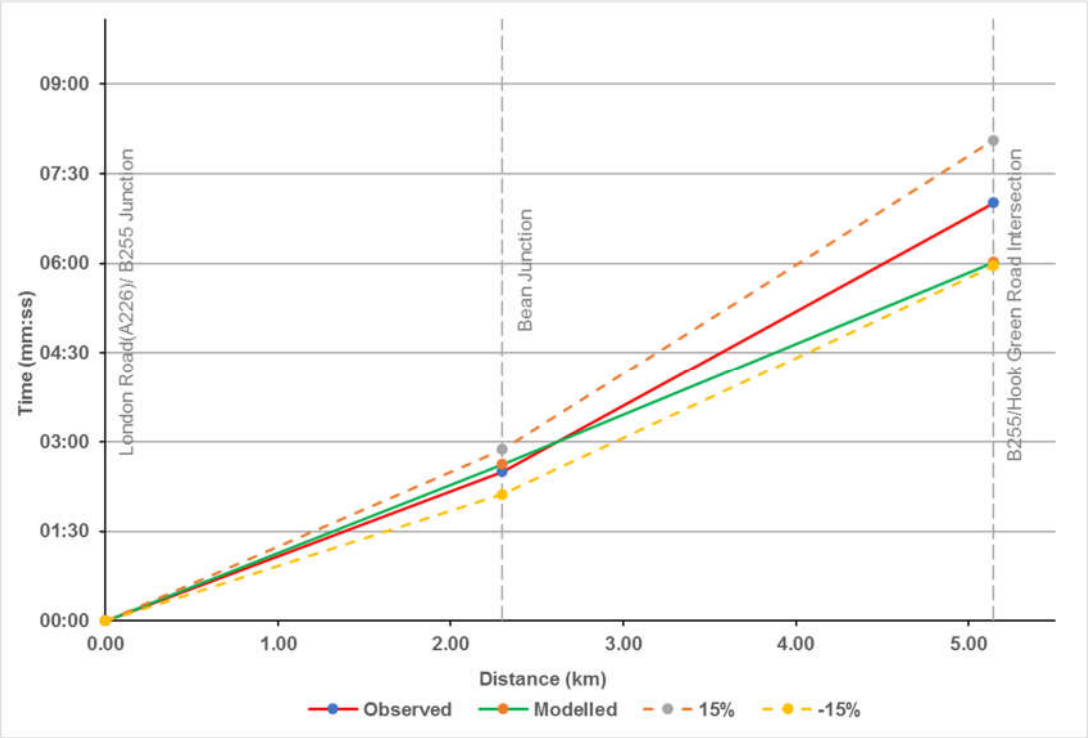
R04SB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Stonebridge Road/A226 Junction	0.00	-	-
Ebbsfleet Gateway(A2260)/Thames Way(A226) Junction	1.70	03:01	02:26
A2260/A2 Junction	3.30	04:46	04:10

Figure E. 15 R05NB - B255/Hook Green Road Intersection to London Road(A226)/ B255 Junction



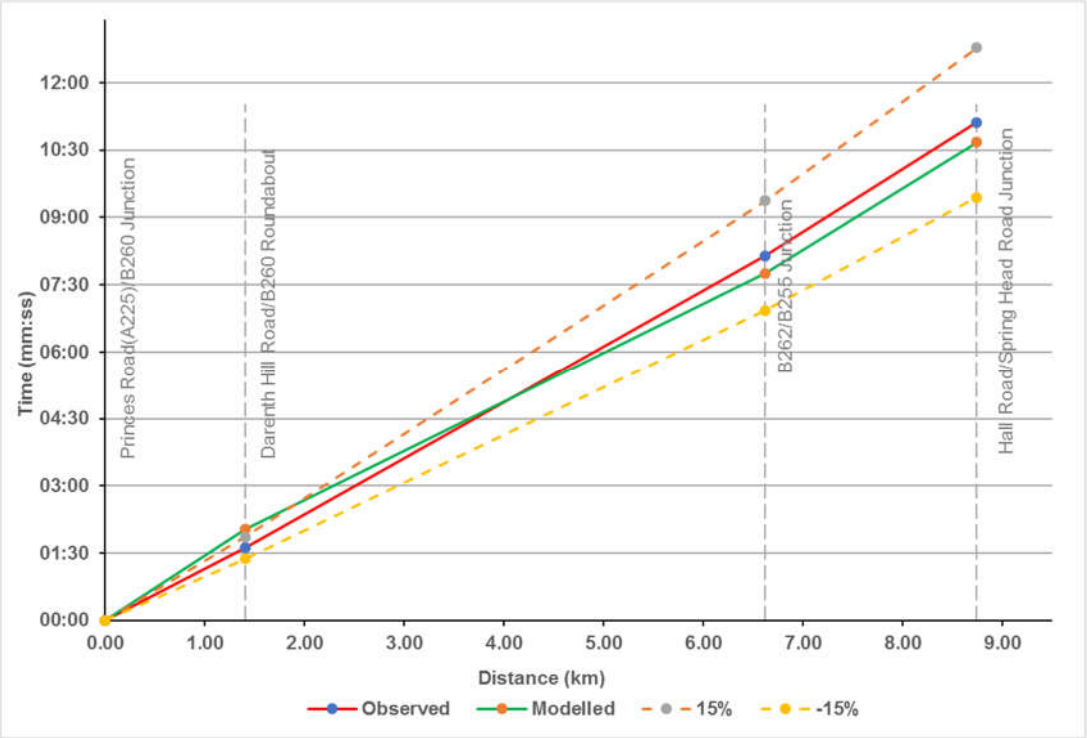
R05NB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
B255/Hook Green Road Intersection	0.00	-	-
Bean Junction	2.75	04:18	03:31
London Road(A226)/ B255 Junction	5.07	06:53	06:04

Figure E. 16 R05SB - London Road(A226)/ B255 Junction to B255/Hook Green Road Intersection



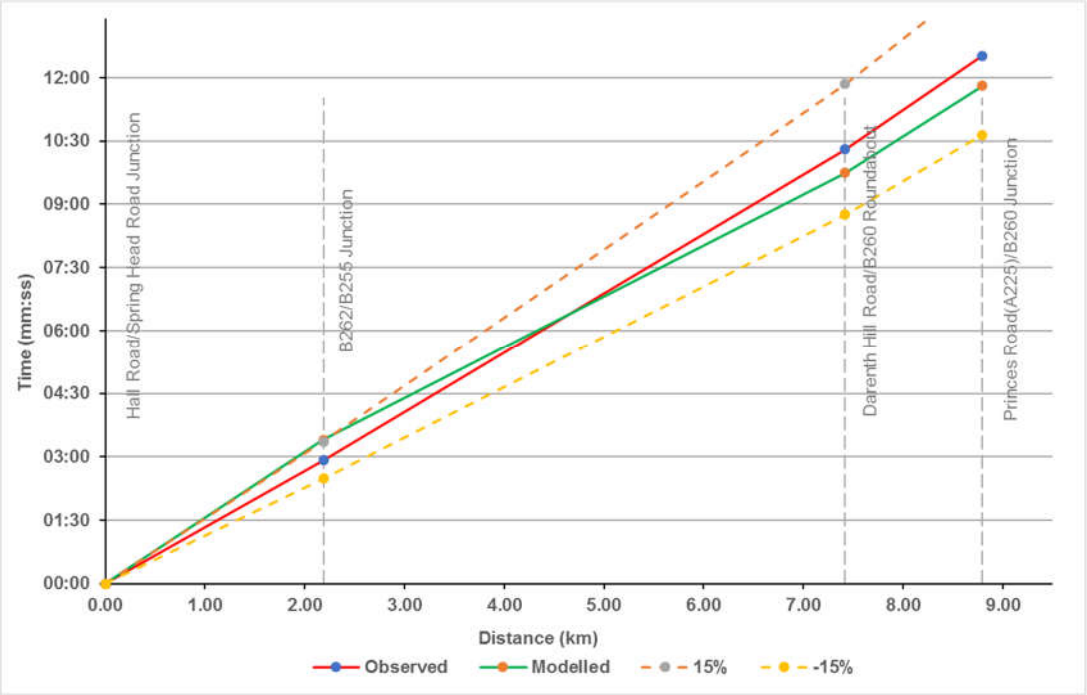
R05SB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
London Road(A226)/ B255 Junction	0.00	-	-
Bean Junction	2.30	02:30	02:37
B255/Hook Green Road Intersection	5.15	07:01	06:01

Figure E. 17 R06EB - Princes Road(A225)/B260 Junction to Hall Road/Spring Head Road Junction



R06EB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Princes Road(A225)/B260 Junction	0.00	-	-
Darenth Hill Road/B260 Roundabout	1.40	01:37	02:02
B262/B255 Junction	6.62	08:09	07:45
Hall Road/Spring Head Road Junction	8.74	11:06	10:40

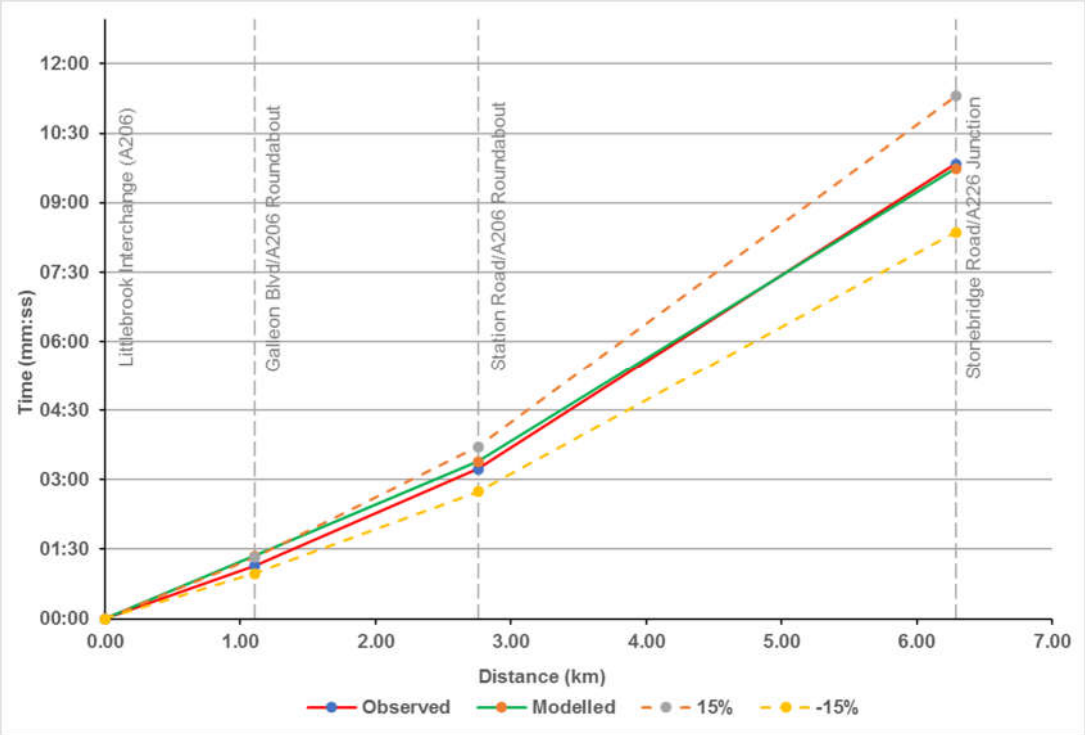
Figure E. 18 R06WB - Hall Road/Spring Head Road Junction to Princes Road(A225)/B260 Junction



R06WB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Hall Road/Spring Head Road Junction	0.00	-	-
B262/B255 Junction	2.19	02:55	03:24
Darenth Hill Road/B260 Roundabout	7.42	10:18	09:44
Princes Road(A225)/B260 Junction	8.79	12:31	11:48

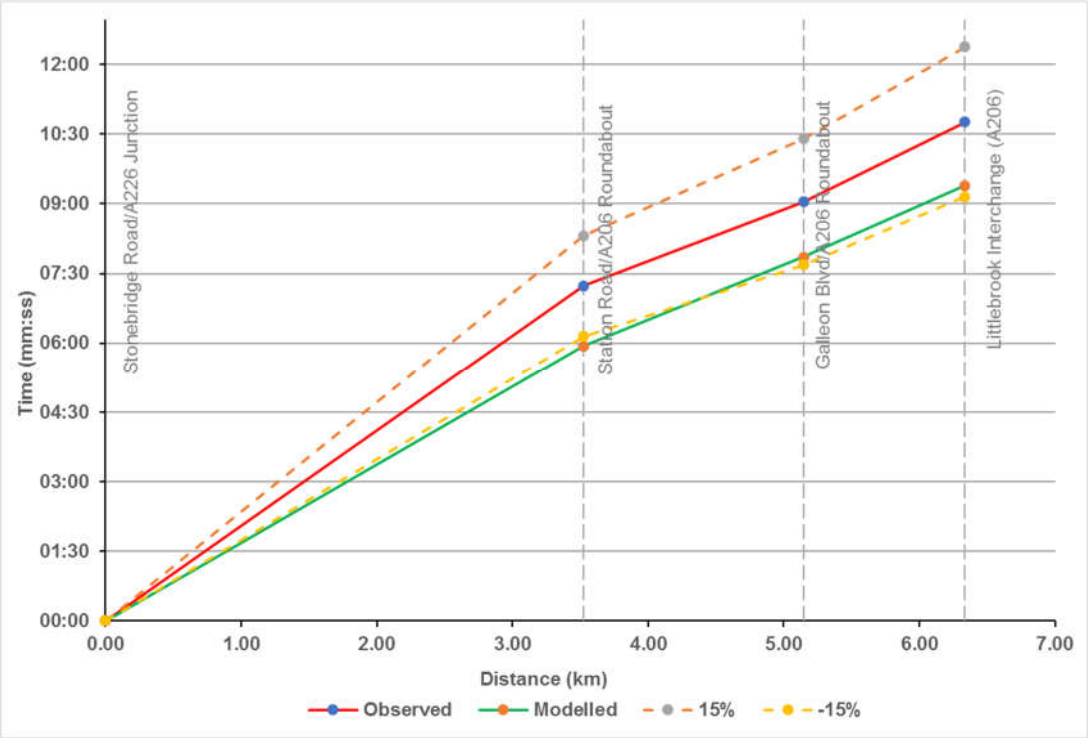
E.3 Journey Time Plots – Inter Peak

Figure E. 19 R01EB - Littlebrook Interchange (A206) to Stonebridge Road/A226 Junction



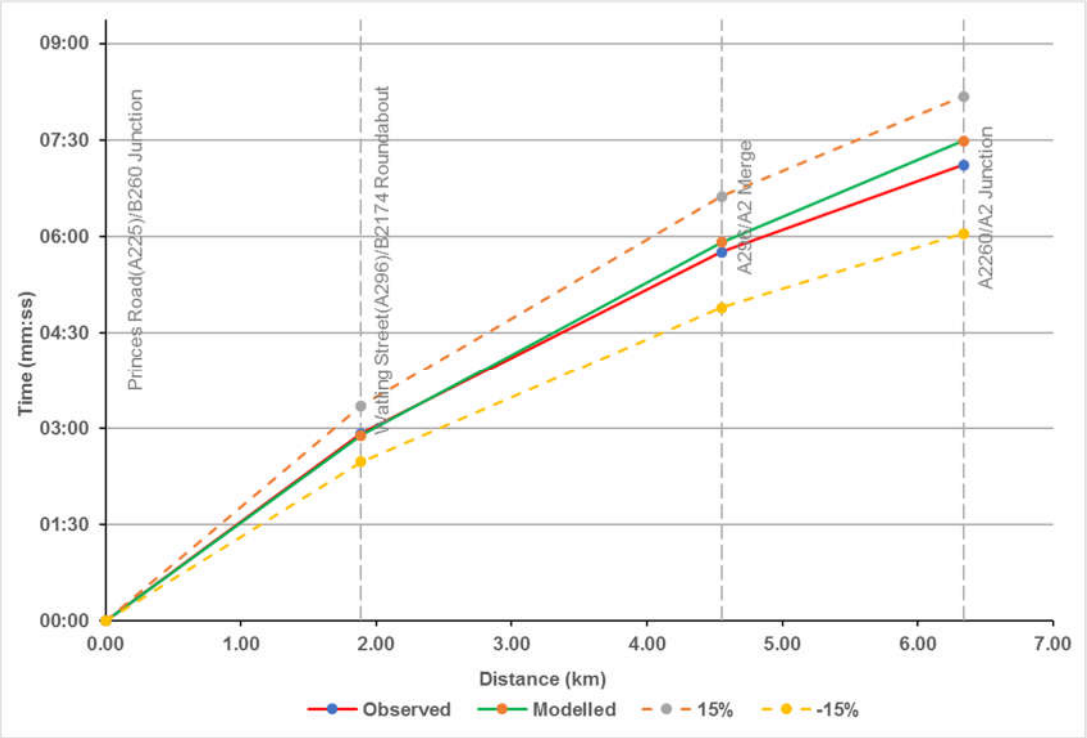
R01EB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Littlebrook Interchange (A206)	0.00	-	-
Galleon Blvd/A206 Roundabout	1.11	01:09	01:21
Station Road/A206 Roundabout	2.76	03:13	03:23
Stonebridge Road/A226 Junction	6.29	09:50	09:44

Figure E. 20 R01WB - Stonebridge Road/A226 Junction to Littlebrook Interchange (A206)



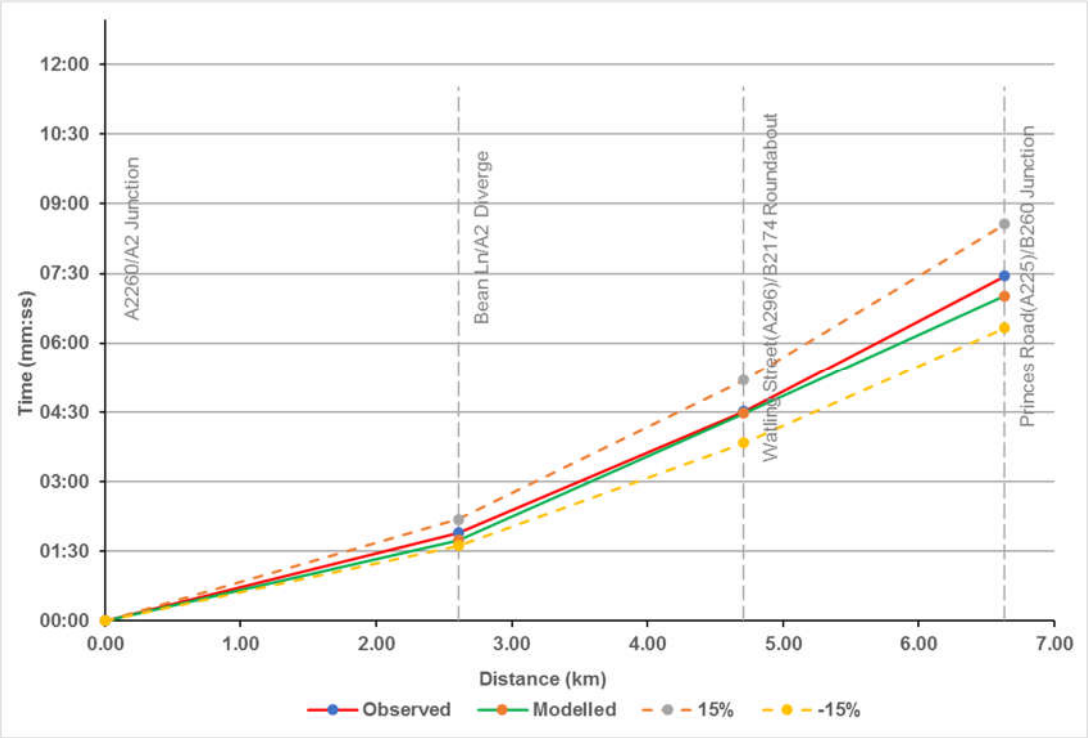
R01WB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Stonebridge Road/A226 Junction	0.00	-	-
Station Road/A206 Roundabout	3.52	07:14	05:56
Galleon blvd/A206 Roundabout	5.15	09:02	07:51
Littlebrook Interchange (A206)	6.33	10:45	09:23

Figure E. 21 R02EB - Princes Road(A225)/B260 Junction to A2260/A2 Junction



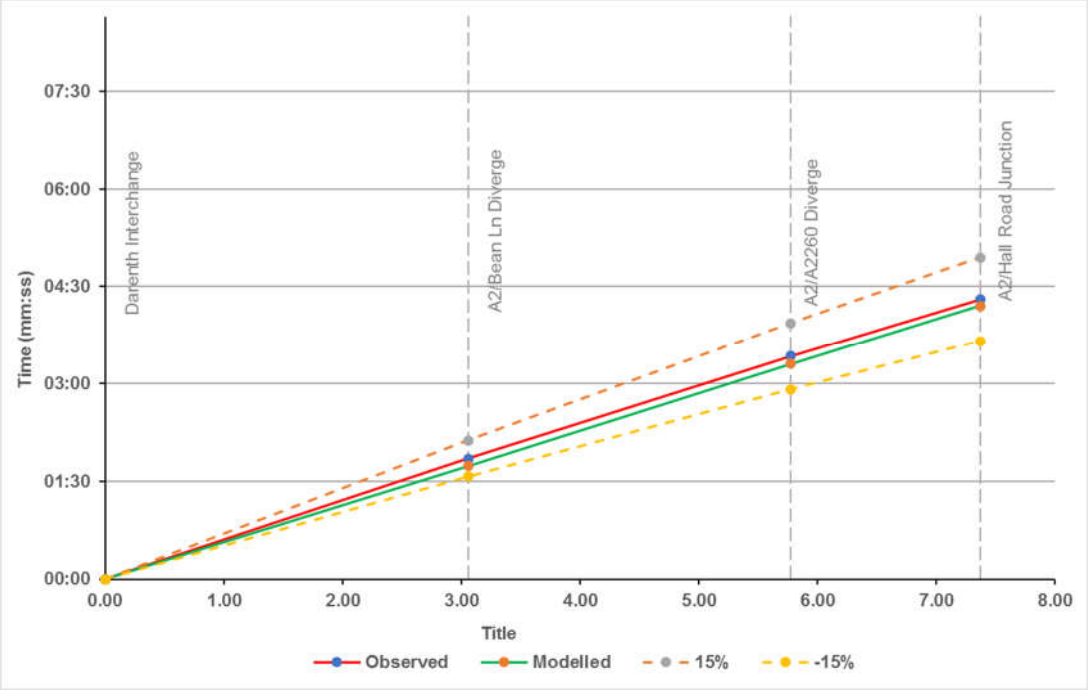
R02EB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Princes Road(A225)/B260 Junction	0.00	-	-
Watling Street(A296)/B2174 Roundabout	1.89	02:55	02:53
A296/A2 Merge	4.55	05:45	05:54
A2260/A2 Junction	6.34	07:06	07:29

Figure E. 22 R02WB - A2260/A2 Junction to Princes Road(A225)/B260 Junction



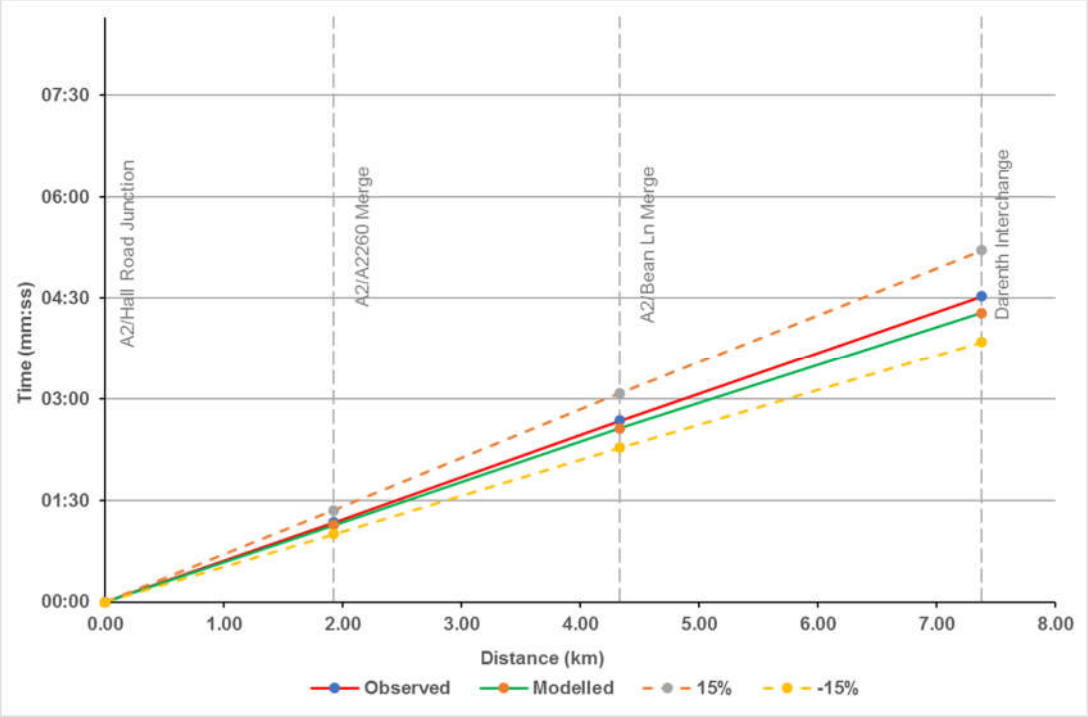
R02WB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
A2260/A2 Junction	0.00	-	-
Bean Ln/A2 Diverge	2.61	01:54	01:44
Watling Street(A296)/B2174 Roundabout	4.71	04:30	04:28
Princes Road(A225)/B260 Junction	6.63	07:27	07:01

Figure E. 23 R03EB - Darenth Interchange to A2/Hall Road Junction



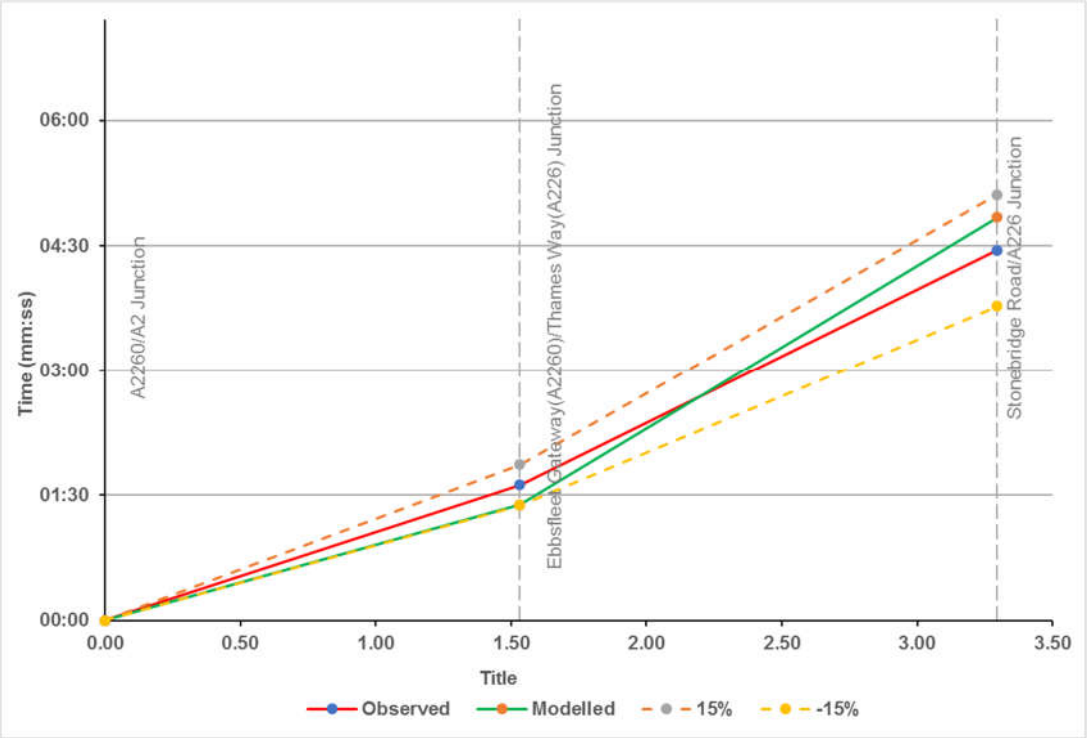
R03EB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Darenth Interchange	0.00	-	-
A2/Bean Ln Diverge	3.06	01:51	01:44
A2/A2260 Diverge	5.78	03:25	03:18
A2/Hall Road Junction	7.37	04:18	04:12

Figure E. 24 R03WB - A2/Hall Road Junction to Darenth Interchange



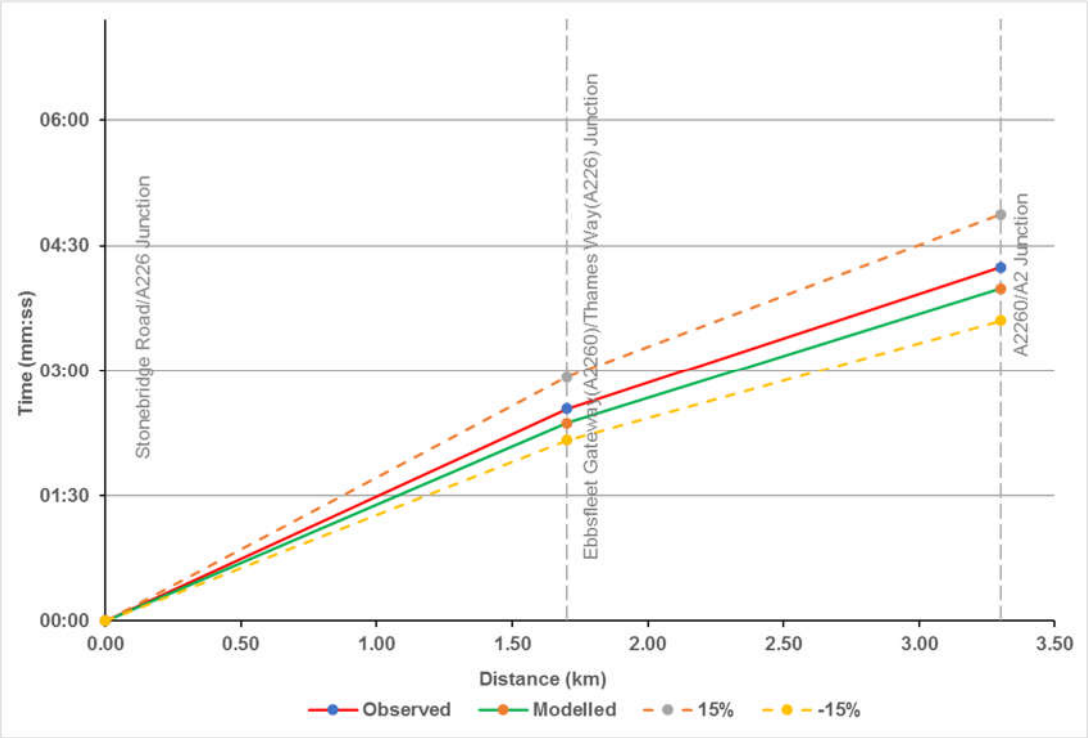
R03WB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
A2/Hall Road Junction	0.00	-	-
A2/A2260 Merge	1.92	01:11	01:08
A2/Bean Ln Merge	4.33	02:41	02:34
Darenth Interchange	7.38	04:32	04:17

Figure E. 25 R04NB - A2260/A2 Junction to Stonebridge Road/A226 Junction



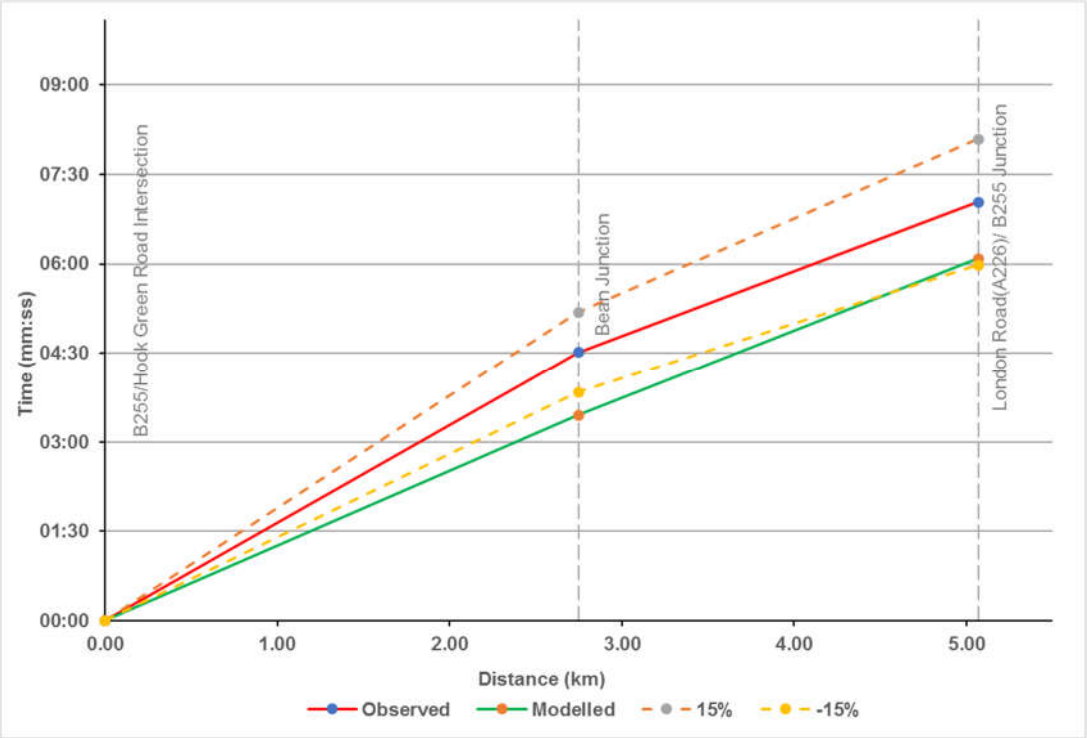
R04NB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
A2260/A2 Junction	0.00	-	-
Ebbsfleet Gateway(A2260)/Thames Way(A226) Junction	1.53	01:37	01:23
Stonebridge Road/A226 Junction	3.30	04:26	04:50

Figure E. 26 R04SB - Stonebridge Road/A226 Junction to A2260/A2 Junction



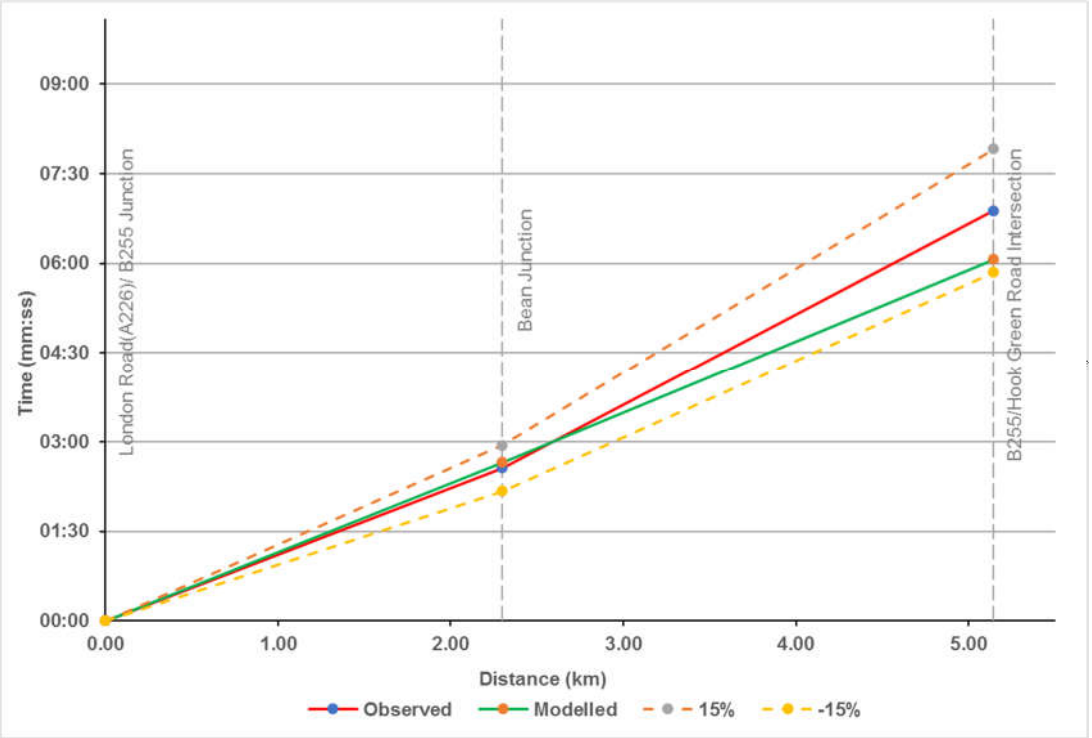
R04SB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Stonebridge Road/A226 Junction	0.00	-	-
Ebbsfleet Gateway(A2260)/Thames Way(A226) Junction	1.70	02:32	02:22
A2260/A2 Junction	3.30	04:14	03:59

Figure E. 27 R05NB - B255/Hook Green Road Intersection to London Road(A226)/ B255 Junction



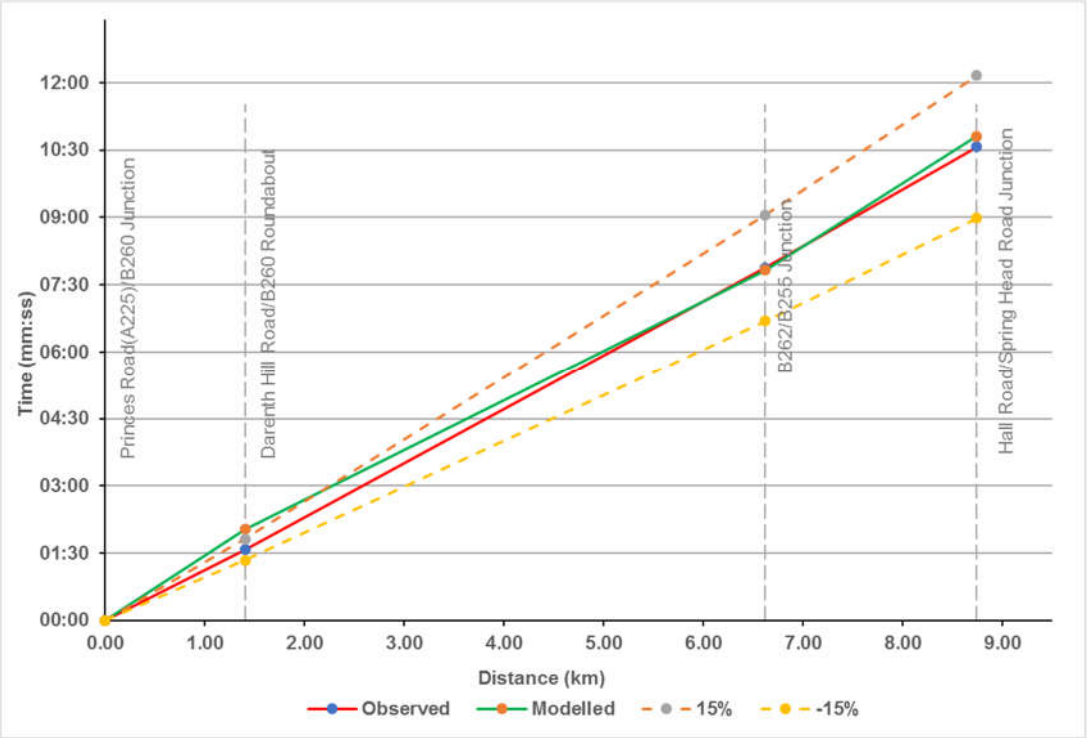
R05NB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
B255/Hook Green Road Intersection	0.00	-	-
Bean Junction	2.75	04:31	03:27
London Road(A226)/ B255 Junction	5.07	07:02	06:05

Figure E. 28 R05SB - London Road(A226)/ B255 Junction to B255/Hook Green Road Intersection



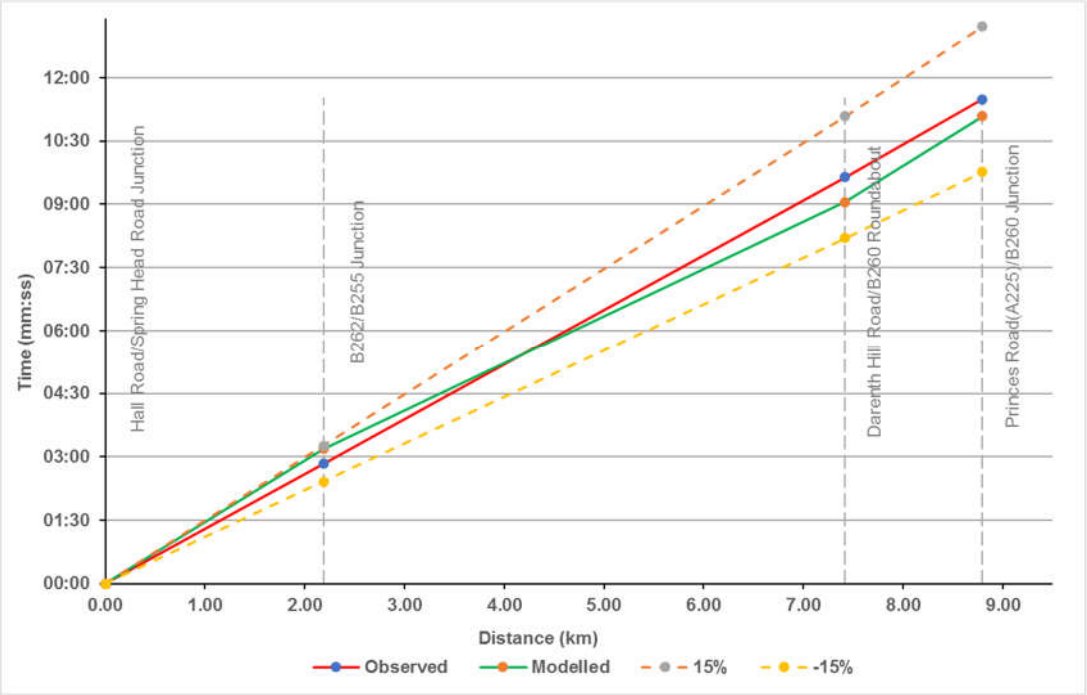
R05SB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
London Road(A226)/ B255 Junction	0.00	-	-
Bean Junction	2.30	02:33	02:39
B255/Hook Green Road Intersection	5.15	06:53	06:04

Figure E. 29 R06EB - Princes Road(A225)/B260 Junction to Hall Road/Spring Head Road Junction



R06EB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Princes Road(A225)/B260 Junction	0.00	-	-
Darenth Hill Road/B260 Roundabout	1.40	01:35	02:02
B262/B255 Junction	6.62	07:52	07:49
Hall Road/Spring Head Road Junction	8.74	10:34	10:48

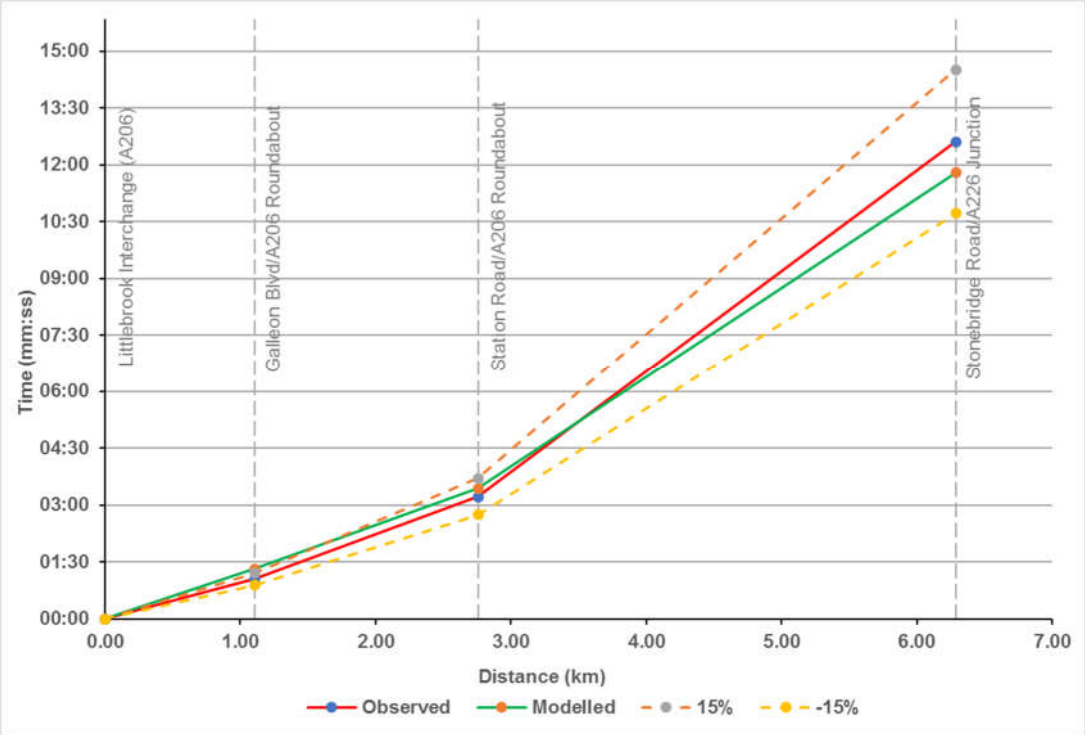
Figure E. 30 R06WB - Hall Road/Spring Head Road Junction to Princes Road(A225)/B260 Junction



R06WB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Hall Road/Spring Head Road Junction	0.00	-	-
B262/B255 Junction	2.19	02:50	03:11
Darenth Hill Road/B260 Roundabout	7.42	09:38	09:03
Princes Road(A225)/B260 Junction	8.79	11:29	11:05

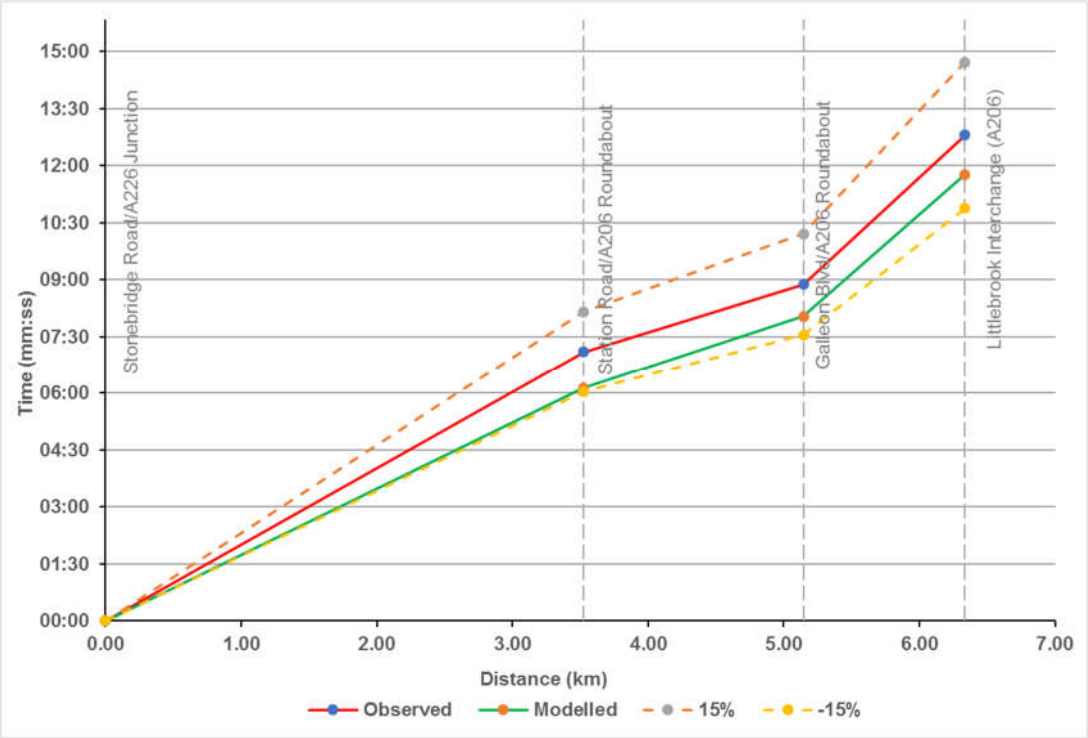
E.4 Journey Time Plots – PM Peak

Figure E. 31 R01EB - Littlebrook Interchange (A206) to Stonebridge Road/A226 Junction



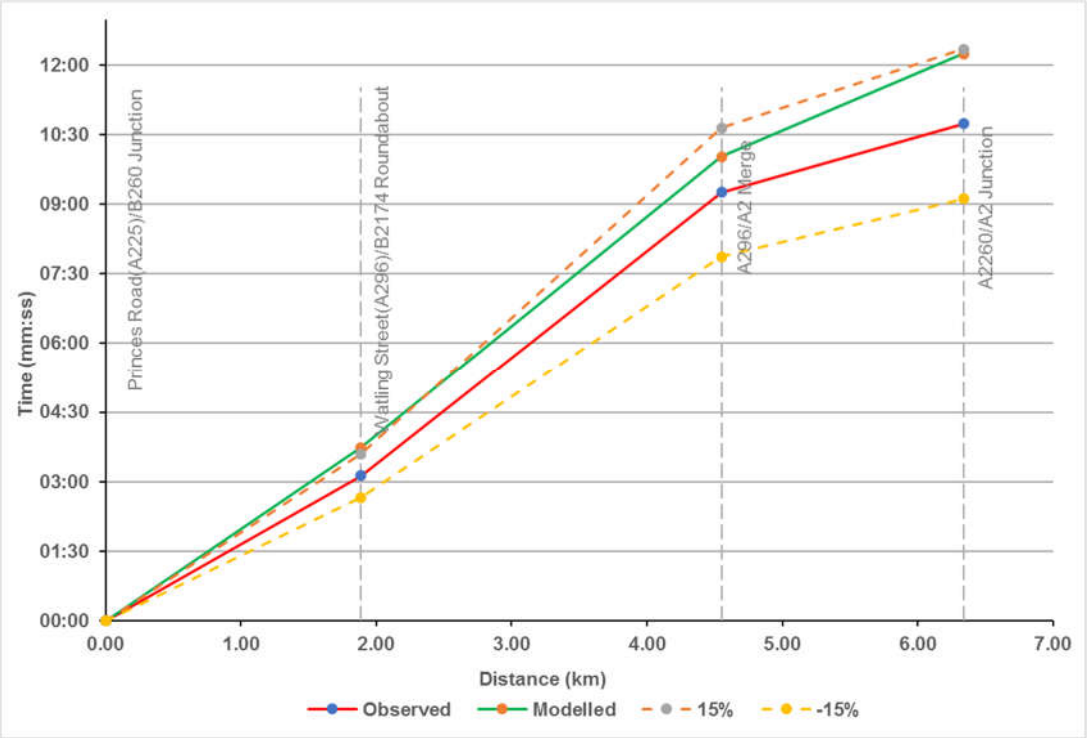
R01EB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Littlebrook Interchange (A206)	0.00	-	-
Galleon Blvd/A206 Roundabout	1.11	01:03	01:19
Station Road/A206 Roundabout	2.76	03:13	03:26
Stonebridge Road/A226 Junction	6.29	12:36	11:47

Figure E. 32 R01WB - Stonebridge Road/A226 Junction to Littlebrook Interchange (A206)



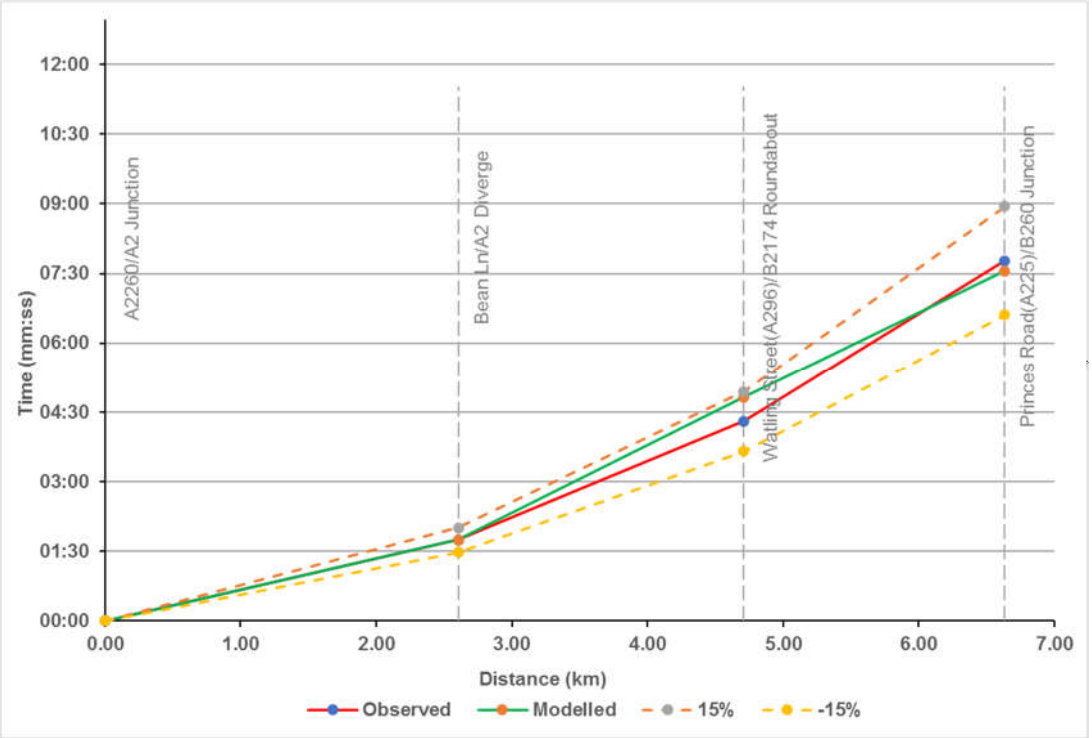
R01WB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Stonebridge Road/A226 Junction	0.00	-	-
Station Road/A206 Roundabout	3.52	07:06	06:08
Galleon blvd/A206 Roundabout	5.15	08:53	08:02
Littlebrook Interchange (A206)	6.33	12:48	11:46

Figure E. 33 R02EB - Princes Road(A225)/B260 Junction to A2260/A2 Junction



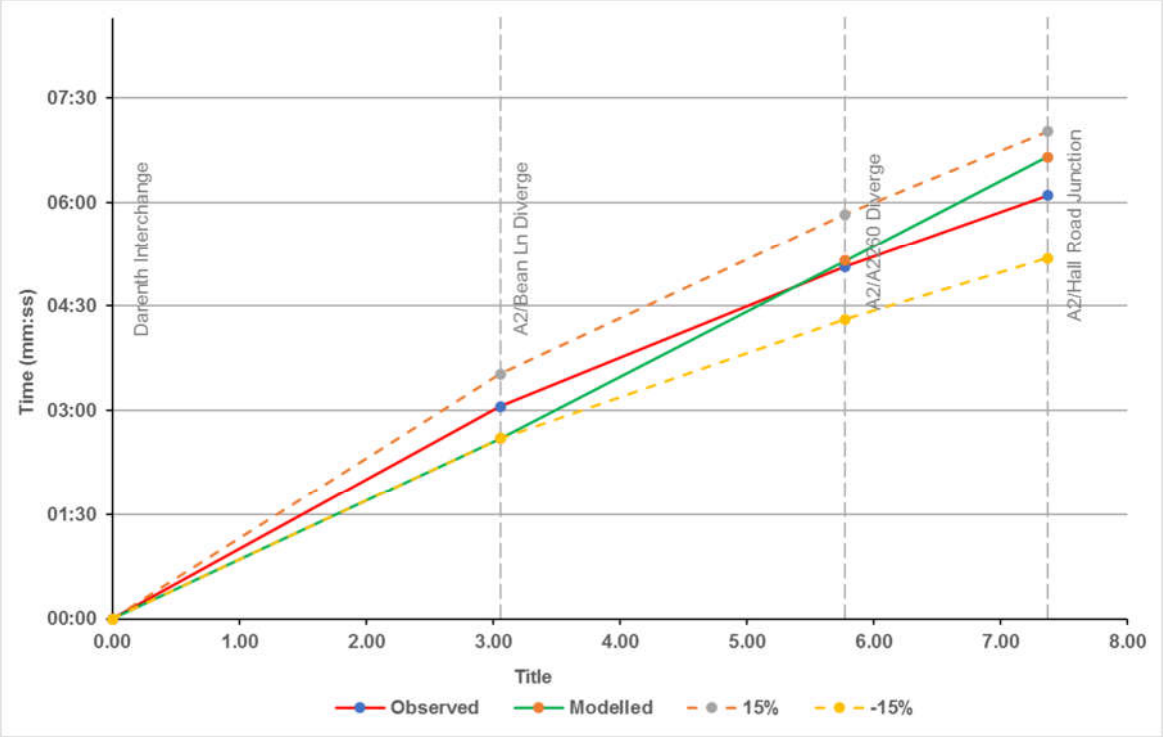
R02EB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Princes Road(A225)/B260 Junction	0.00	-	-
Watling Street(A296)/B2174 Roundabout	1.89	03:08	03:44
A296/A2 Merge	4.55	09:15	10:01
A2260/A2 Junction	6.34	10:43	12:14

Figure E. 34 R02WB - A2260/A2 Junction to Princes Road(A225)/B260 Junction



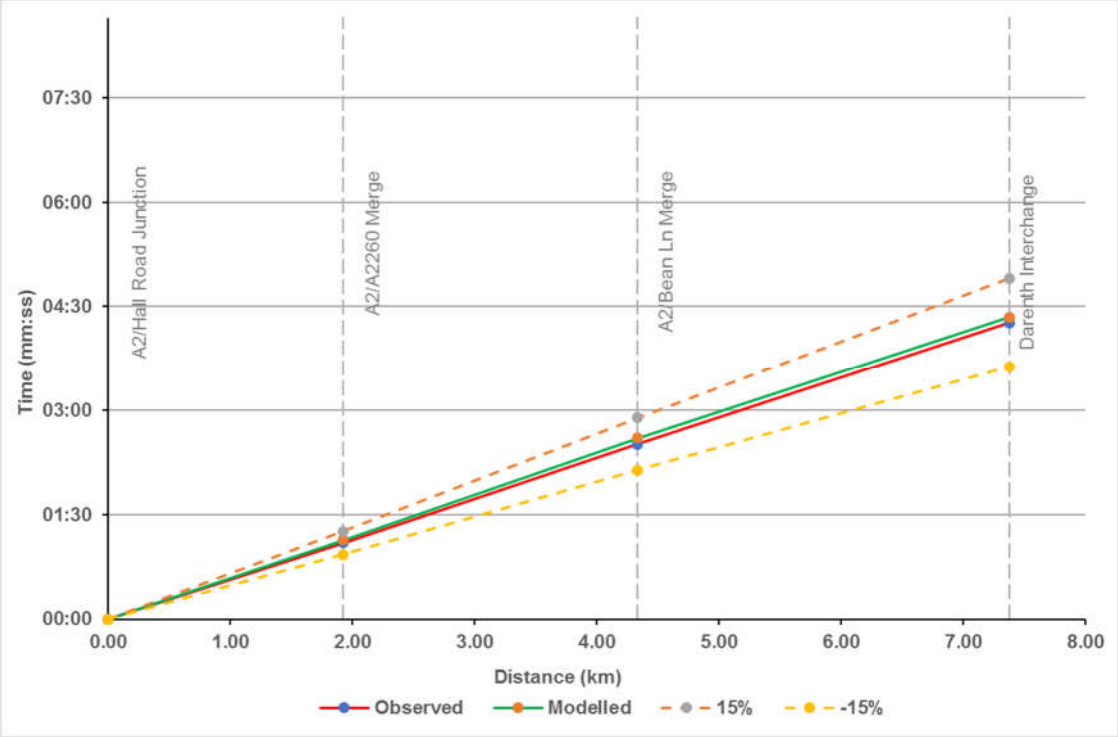
R02WB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
A2260/A2 Junction	0.00	-	-
Bean Ln/A2 Diverge	2.61	01:45	01:45
Watling Street(A296)/B2174 Roundabout	4.71	04:18	04:49
Princes Road(A225)/B260 Junction	6.63	07:46	07:33

Figure E. 35 R03EB - Darenth Interchange to A2/Hall Road Junction



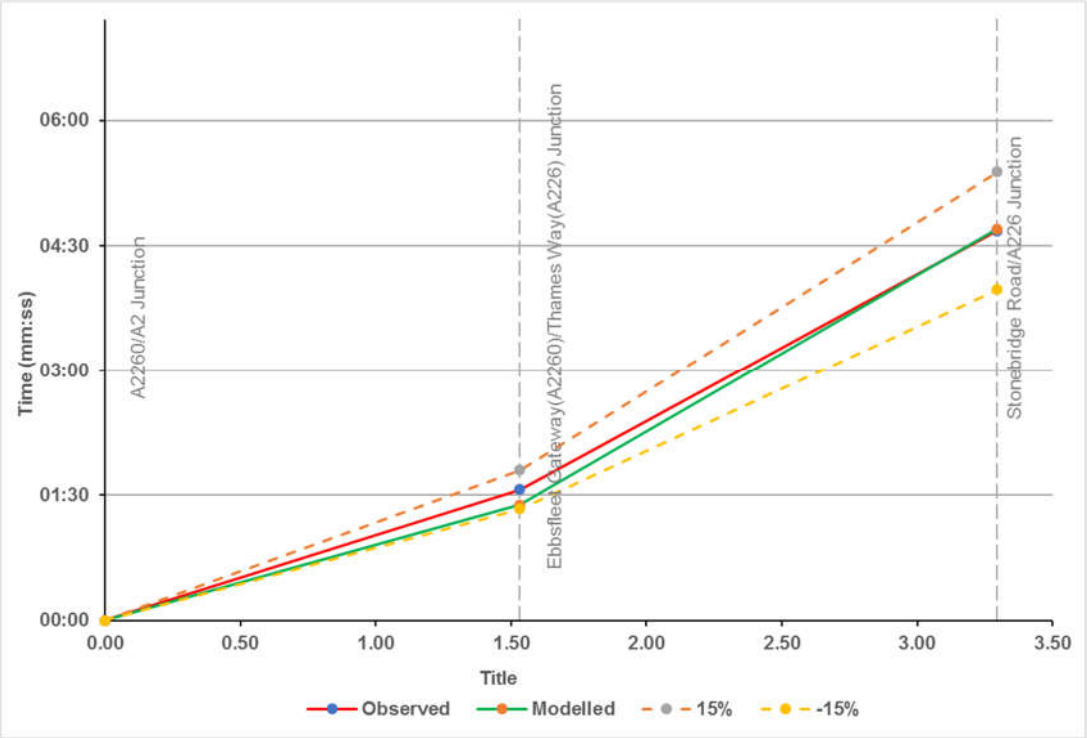
R03EB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Darenth Interchange	0.00	-	-
A2/Bean Ln Diverge	3.06	03:04	02:36
A2/A2260 Diverge	5.78	05:04	05:09
A2/Hall Road Junction	7.37	06:06	06:39

Figure E. 36 R03WB - A2/Hall Road Junction to Darenth Interchange



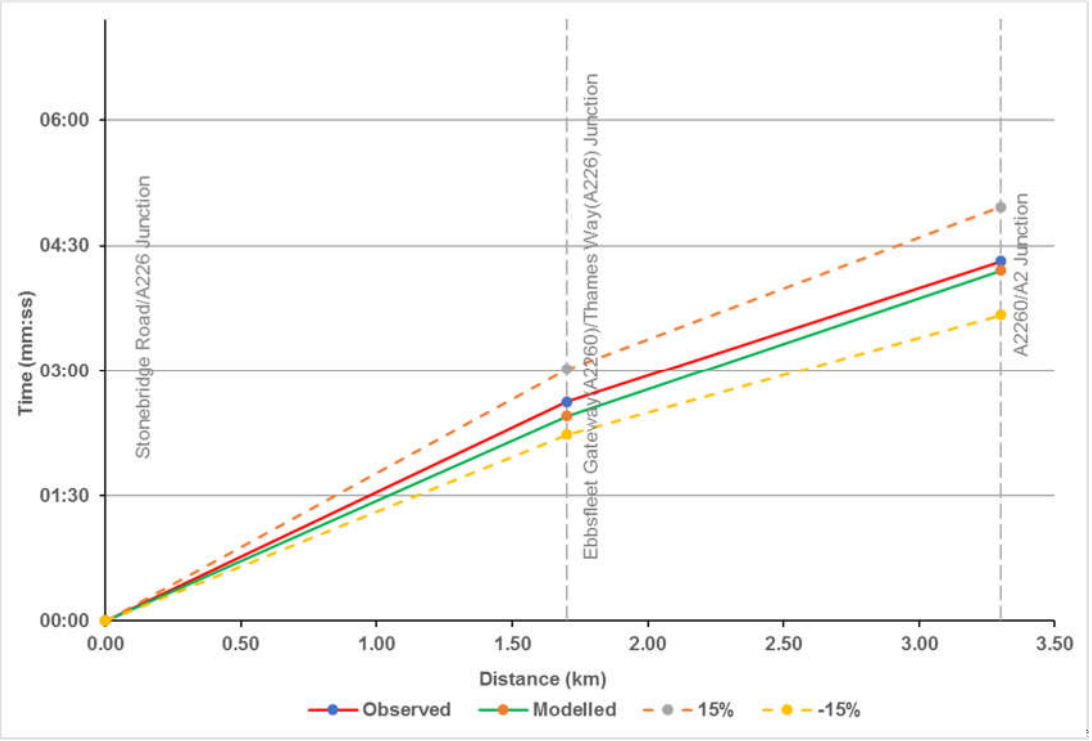
R03WB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
A2/Hall Road Junction	0.00	-	-
A2/A2260 Merge	1.92	01:06	01:08
A2/Bean Ln Merge	4.33	02:31	02:36
Darenth Interchange	7.38	04:16	04:21

Figure E. 37 R04NB - A2260/A2 Junction to Stonebridge Road/A226 Junction



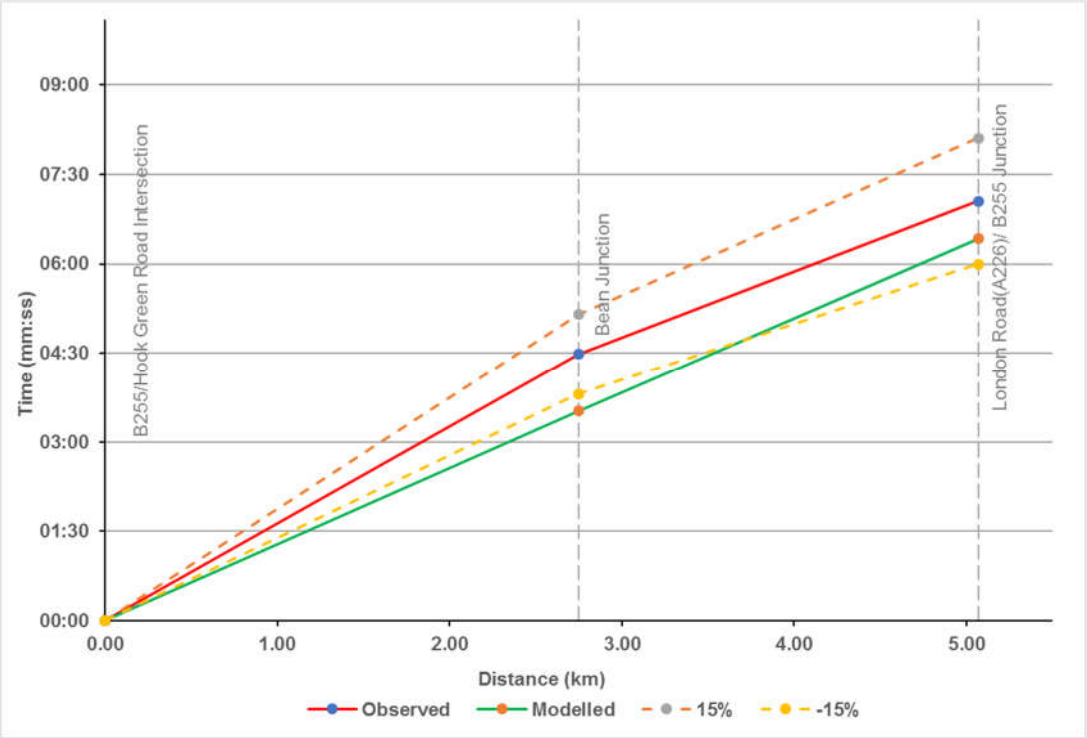
R04NB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
A2260/A2 Junction	0.00	-	-
Ebbsfleet Gateway(A2260)/Thames Way(A226) Junction	1.53	01:34	01:23
Stonebridge Road/A226 Junction	3.30	04:41	04:42

Figure E. 38 R04SB - Stonebridge Road/A226 Junction to A2260/A2 Junction



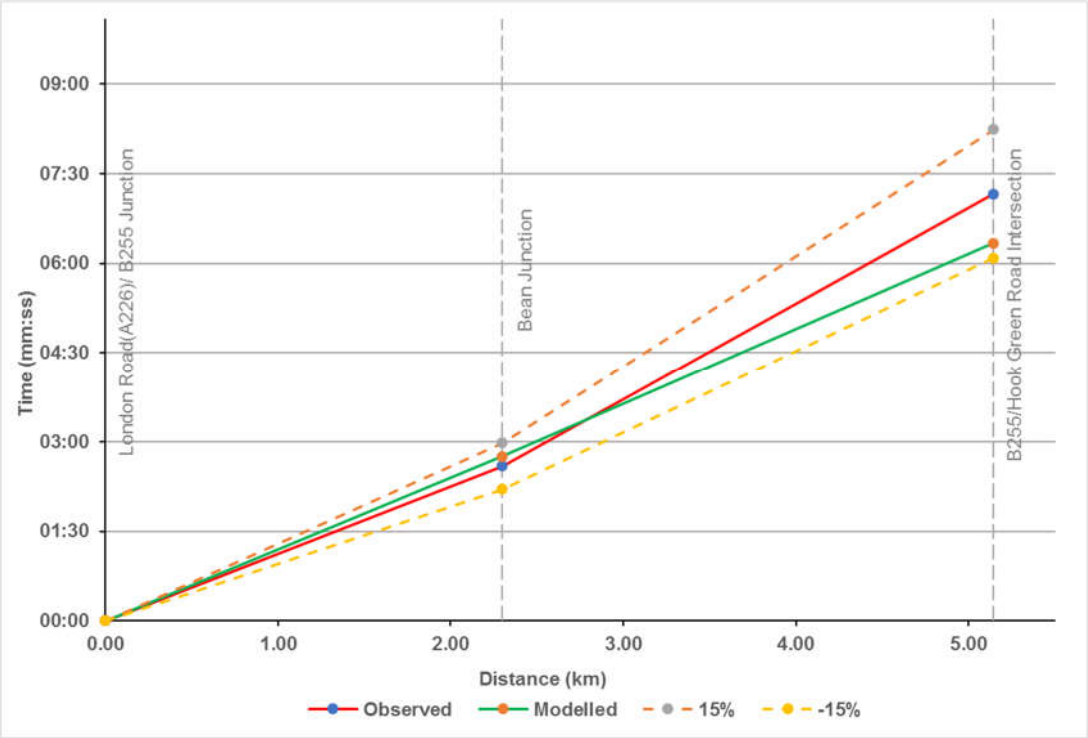
R04SB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Stonebridge Road/A226 Junction	0.00	-	-
Ebbsfleet Gateway(A2260)/Thames Way(A226) Junction	1.70	02:37	02:27
A2260/A2 Junction	3.30	04:19	04:12

Figure E. 39 R05NB - B255/Hook Green Road Intersection to London Road(A226)/ B255 Junction



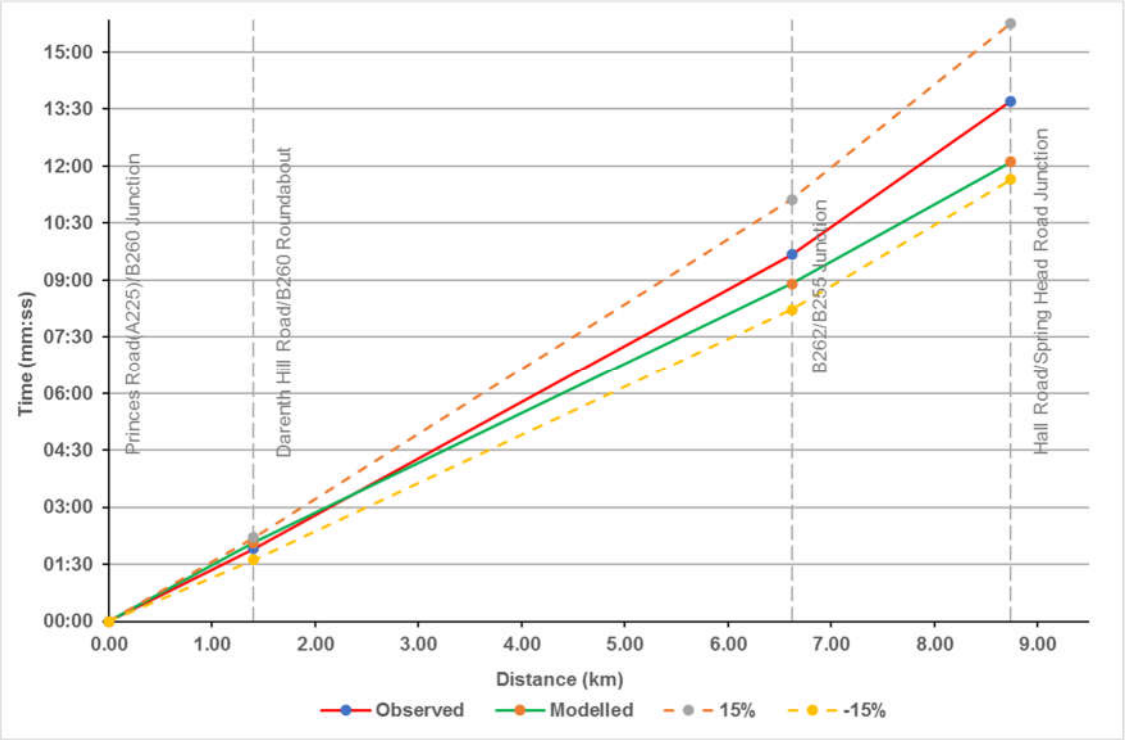
R05NB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
B255/Hook Green Road Intersection	0.00	-	-
Bean Junction	2.75	04:29	03:31
London Road(A226)/ B255 Junction	5.07	07:03	06:25

Figure E. 40 R05SB - London Road(A226)/ B255 Junction to B255/Hook Green Road Intersection



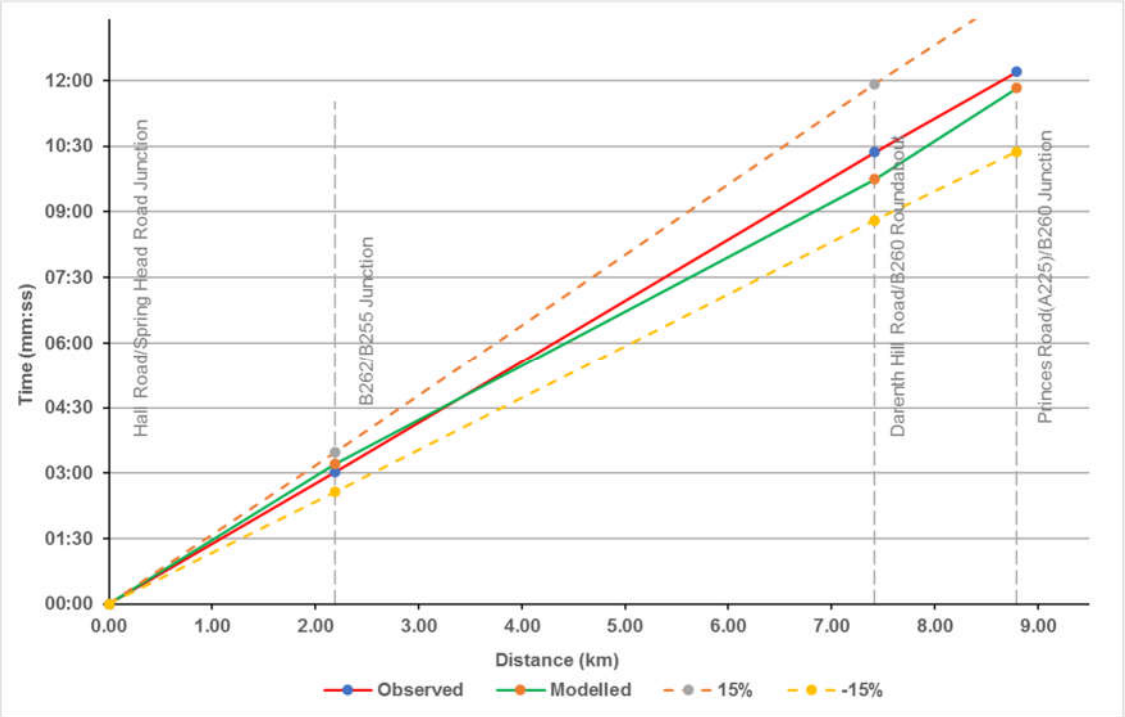
R05SB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
London Road(A226)/ B255 Junction	0.00	-	-
Bean Junction	2.30	02:35	02:45
B255/Hook Green Road Intersection	5.15	07:10	06:20

Figure E. 41 R06EB - Princes Road(A225)/B260 Junction to Hall Road/Spring Head Road Junction



R06EB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Princes Road(A225)/B260 Junction	0.00	-	-
Darenth Hill Road/B260 Roundabout	1.40	01:55	02:04
B262/B255 Junction	6.62	09:40	08:54
Hall Road/Spring Head Road Junction	8.74	13:42	12:06

Figure E. 42 R06WB - Hall Road/Spring Head Road Junction to Princes Road(A225)/B260 Junction



R06WB	Cumulative Length (km)	Cumulative Observed Time (mm:ss)	Cumulative Modelled Time (mm:ss)
Hall Road/Spring Head Road Junction	0.00	-	-
B262/B255 Junction	2.19	03:01	03:12
Darenth Hill Road/B260 Roundabout	7.42	10:21	09:44
Princes Road(A225)/B260 Junction	8.79	12:11	11:49

Appendix F. Operational Model Flow Comparisons

Table F. 1 AM Peak Hour Flow Comparisons (vehicles)

No	Junction	Turning Movement	Modelled (Veh)	Observed (Veh)	GEH
1	B255/Bluewater Parkway Roundabout	B255 South U Turn	0	2	2.02
		B255 South to Bluewater Parkway	1	3	1.44
		B255 South to B255 North	638	730	3.50
		Bluewater Parkway to B255 South	5	10	1.88
		Bluewater Parkway U Turn	0	0	0.00
		Bluewater Parkway to B255 North	78	73	0.54
		B255 North to B255 South	702	808	3.86
		B255 North to Bluewater Parkway	152	143	0.70
		B255 North U Turn	40	52	1.76
2	B255 SB offslip/Watling Street/Bean Lane Roundabout	B255 to Bean Lane	0	7	3.77
		B255 to Watling Street	230	240	0.66
		B255 to A296 West	105	115	0.95
		Watling Street to Bean Lane	11	13	0.64
		Watling Street U Turn	0	0	0.00
		Watling Street to A296 West	2	2	0.02
		A296 West to Bean Lane	71	81	1.19
		A296 West to Watling Street	329	347	0.98
		A296 West U Turn	0	0	0.00
		Bean Lane to Watling Street	80	83	0.38
		Bean Lane to A296 West	643	702	2.28
3	Bean Lane/A2 EB offslip/B255 Roundabout	A2 EB offslip to Bean Lane North	36	39	0.44
		A2 EB offslip to B255	249	288	2.38
		A2 EB offslip to Bean Lane South	66	70	0.51
		Bean Lane South to Bean Lane North	690	754	2.38
		Bean Lane South to B255	661	732	2.68
		B255 to Bean Lane North	0	0	0.00
		B255 U Turn	5	0	3.16
		B255 to Bean Lane South	404	441	1.78
		Bean Lane North U Turn	0	0	0.00
		Bean Lane North to B255	41	51	1.46
		Bean Lane North to Bean Lane South	42	48	0.87
4		A2 WB offslip to Bean Lane NW	1,146	1,256	3.17

No	Junction	Turning Movement	Modelled (Veh)	Observed (Veh)	GEH
	A2 WB Slip/Bean Lane Roundabout	A2 WB offslip to Bean Lane South	16	21	1.24
		Bean Lane NW to A2 WB onslip	392	437	2.19
		Bean Lane NW U Turn	0	0	0.00
		Bean Lane NW to Bean Lane South	117	122	0.47
		Bean Lane South to A2 WB onslip	156	169	1.01
		Bean Lane South to Bean Lane NW	215	231	1.07
5	A2 EB slip/A2260 Roundabout	A2 EB offslip to A2 EB onslip	365	445	3.96
		A2 EB offslip to A2260	280	341	3.46
		A2260 to A2 EB onslip	177	223	3.24
		A2260 U Turn	0	0	0.00
6	A2260/Substation Access Road Roundabout	A2260 South U Turn	0	0	0.00
		A2260 South to A2260 North	402	553	6.89
		A2260 South to A2260 East	0	2	2.02
		A2260 South to Substation Access Road	1	2	0.84
		A2260 North to A2260 South	359	399	2.05
		A2260 North U Turn	0	0	0.00
		A2260 North to A2260 East	177	218	2.90
		A2260 North to Substation Access Road	0	0	0.00
		A2260 East to A2260 South	0	23	6.84
		A2260 East to A2260 North	279	317	2.23
		A2260 East U Turn	0	1	1.43
		A2260 East to Substation Access Road	0	1	1.43
		Substation Access Road to A2260 South	0	1	1.43
		Substation Access Road to A2260 North	0	0	0.00
		Substation Access Road to A2260 East	0	0	0.00
7	International Way/Ebbsfleet Gateway/Southfleet Road Roundabout	A2260 South U Turn	0	0	0.00
		A2260 South to International Way	78	180	8.99
		A2260 South to Southfleet Road	160	201	3.09
		A2260 South to Ebbsfleet Gateway	444	492	2.20
		Ebbsfleet Gateway to A2260 South	335	397	3.23
		Ebbsfleet Gateway to Southfleet Road	66	31	5.11
		Ebbsfleet Gateway U Turn	0	0	0.00
		International Way to A2260 South	0	0	0.00
		International Way to Southfleet Road	0	0	0.00
		International Way to Ebbsfleet Gateway	0	0	0.00
		Southfleet Road to A2260 South	203	225	1.50
		Southfleet Road to International Way	4	4	0.04
		Southfleet Road U Turn	0	0	0.00

No	Junction	Turning Movement	Modelled (Veh)	Observed (Veh)	GEH
		Southfleet Road to Ebbsfleet Gateway	35	23	2.15
8	International Way/Ebbsfleet Gateway	Ebbsfleet Gateway South to Ebbsfleet Gateway North	255	300	2.71
		Ebbsfleet Gateway South to International Way	219	216	0.22
		Ebbsfleet Gateway North to Ebbsfleet Gateway South	397	332	3.42
		Ebbsfleet Gateway North to International Way	126	117	0.81
		International Way to Ebbsfleet Gateway North	89	68	2.35
		International Way to Ebbsfleet Gateway South	88	101	1.31
9	Thames Way/Ebbsfleet Gateway	Ebbsfleet Gateway to Thames Way South	110	118	0.75
		Ebbsfleet Gateway to Thames Way North	233	238	0.33
		Thames Way South to Ebbsfleet Gateway	403	309	4.96
		Thames Way North to Ebbsfleet Gateway	121	138	1.53
		Thames Way North to Thames Way South	56	48	1.13
		Thames Way South to Thames Way North	189	211	1.53
10	Springhead Road/Thames Way Roundabout	Thames Way West to Springhead Road South	62	53	1.20
		Thames Way West to Thames Way East	94	101	0.68
		Thames Way West to Springhead Road North	5	6	0.47
		Thames Way West U Turn	0	1	1.43
		Springhead Road North to Springhead South	140	144	0.38
		Springhead Road North to Thames Way East	3	3	0.03
		Springhead Road North U Turn	0	0	0.00
		Springhead Road North to Thames Way West	35	44	1.40
		Thames Way East to Springhead Road South	206	216	0.67
		Thames Way East U Turn	0	0	0.00
		Thames Way East Springhead Road North	2	2	0.02
		Thames Way East to Thames Way West	247	265	1.10
		Springhead Road South U Turn	0	4	2.85
		Springhead Road South to Thames Way East	283	326	2.44
		Springhead Road South to Springhead Road North	90	96	0.59
		Springhead Road South to Thames Way West	318	224	5.72
11	Springhead Road/ Local Access Road/Enterprise Park	Springhead Road South to Springhead Road North	667	610	2.27
		Springhead Road South to Springhead Enterprise park	44	47	0.42

No	Junction	Turning Movement	Modelled (Veh)	Observed (Veh)	GEH
		Springhead Road South to Local Access Road	17	22	1.21
		Springhead Road North to Springhead Road South	351	352	0.06
		Springhead Road North to Springhead Enterprise park	27	35	1.37
		Springhead Road North to Local Access Road	26	28	0.48
		Springhead Enterprise park to Springhead Road North	20	24	0.94
		Springhead Enterprise park to Springhead Road South	6	15	2.84
		Springhead Enterprise park to Local Access Road	0	0	0.00
		Local Access Road to Springhead Road North	6	9	1.15
		Local Access Road to Springhead Road South	13	23	2.44
		Local Access Road to Springhead Road Enterprise park	0	0	0.00
12	Springhead Road/Enterprise Park	Springhead Road South to Springhead Road North	735	687	1.80
		Springhead Road South to Springhead Enterprise park	64	75	1.35
		Springhead Road North to Springhead Road South	361	381	1.02
		Springhead Road North to Springhead Enterprise park	8	9	0.40
		Springhead Enterprise park to Springhead Road South	16	27	2.46
		Springhead Enterprise park to Springhead Road North	0	5	3.19
13	Springhead Road/Haldane Garden/Springhead Parkway	Springhead Road South to Springhead Road North	771	732	1.44
		Springhead Road South to Springhead Parkway	12	13	0.35
		Springhead Road South to Haldane Garden	1	2	0.84
		Springhead Road North to Springhead Parkway	12	11	0.24
		Springhead Road North to Haldane Garden	1	3	1.44
		Springhead Road North to Springhead Road South	363	395	1.64
		Haldane Garden to Springhead Road North	3	6	1.46
		Haldane Garden to Springhead Road South	9	12	0.99
		Springhead Parkway to Springhead Road North	26	30	0.67
		Springhead Parkway to Haldane Garden	0	0	0.00
		Springhead Parkway to Springhead Road South	63	64	0.14
14	Springhead Road/Waterdales	Springhead Road South to Springhead Road North	787	757	1.08

No	Junction	Turning Movement	Modelled (Veh)	Observed (Veh)	GEH
		Spirnghead Road South to Waterdales	6	9	1.15
		Springhead Road North to Springhead Road South	429	474	2.13
		Springhead Road North to Waterdales	5	9	1.56
		Waterdales to Springhead Road North	3	9	2.50
		Waterdales to Springhead Road South	17	20	0.78
15	Springhead Road/Hall Road/Sainsbury's Access	Hall Road East to Hall Road South	513	674	6.60
		Hall Road East U Turn	0	2	2.02
		Hall Road East to Sainsbury's Access	46	50	0.56
		Hall Road East to Springhead Road North	234	101	10.30
		Hall Road South U Turn	27	49	3.55
		Hall Road South to Hall Road East	251	270	1.16
		Hall Road South to Springhead Road North	517	624	4.47
		Hall Road South to Sainsbury's Access	99	101	0.17
		Springhead Road North to Hall Road South	347	407	3.09
		Springhead Road North to Hall Road East	68	64	0.48
		Springhead Road North to Sainsbury's Access	30	37	1.15
		Springhead Road North U Turn	0	0	0.00
		Sainsbury's Access to Hall Road South	119	120	0.10
		Sainsbury's Access to Hall Road East	17	16	0.18
		Sainsbury's Access U Turn	0	1	1.43
		Sainsbury's Access to Springhead Road North	47	50	0.41
16	Hall Road/A2 East Slip	A2 East offslip to Hall Road North	367	468	4.95
		Hall Road North to Hall Road South	728	997	9.17
		Hall Road South to A2 East onslip	204	203	0.11
		Hall Road North to A2 East onslip	275	267	0.51
		Hall Road South to Hall Road North	542	606	2.69
17	Hall Road/New Barn Road/Station Road Roundabout	Hall Road U Turn	0	0	0.00
		Hall Road to Station Road	119	137	1.62
		Hall Road to A2 WB onslip	467	702	9.73
		Hall Road to New Barn Road	141	160	1.53
		A2 WB offslip to Hall Road	335	363	1.51
		A2 WB offslip to Station Road	180	186	0.46
		A2 WB offslip to New Barn Road	145	157	0.95
		Station Road to Hall Road	139	156	1.38
		Station Road U Turn	0	0	0.00
		Station Road to A2 WB onslip	24	27	0.69

No	Junction	Turning Movement	Modelled (Veh)	Observed (Veh)	GEH
		Station Road to New Barn Road	6	4	0.86
		New Barn Road to Hall Road	278	295	1.01
		New Barn Road to Station Road	7	7	0.05
		New Barn Road to A2 WB onlsip	144	160	1.28

Table F. 2 PM Peak Hour Flow Comparisons (vehicles)

No	Junction	Turning Movement	Modelled	Observed	GEH
1	B255/Bluewater Parkway Roundabout	B255 South U Turn	0	6	3.49
		B255 South to Bluewater Parkway	4	4	0.04
		B255 South to B255 North	729	766	1.36
		Bluewater Parkway to B255 South	194	197	0.24
		Bluewater Parkway U Turn	0	0	0.00
		Bluewater Parkway to B255 North	425	435	0.46
		B255 North to B255 South	776	870	3.28
		B255 North to Bluewater Parkway	374	377	0.13
		B255 North U Turn	46	54	1.12
2	B255 SB offslip/Watling Street/Bean Lane Roundabout	B255 to Bean Lane	0	19	6.22
		B255 to Watling Street	990	997	0.23
		B255 to A296 West	208	223	1.01
		Watling Street to Bean Lane	18	19	0.31
		Watling Street U Turn	0	0	0.00
		Watling Street to A296 West	7	7	0.05
		A296 West to Bean Lane	246	265	1.16
		A296 West to Watling Street	573	582	0.38
		A296 West U Turn	0	5	3.19
		Bean Lane to Watling Street	54	53	0.15
		Bean Lane to A296 West	505	492	0.60
3	Bean Lane/A2 EB offslip/B255 Roundabout	A2 EB offslip to Bean Lane North	61	61	0.01
		A2 EB offslip to B255	715	822	3.87
		A2 EB offslip to Bean Lane South	146	157	0.87
		Bean Lane South to Bean Lane North	499	485	0.61
		Bean Lane South to B255	1,027	1,009	0.55
		B255 to Bean Lane North	0	11	4.73
		B255 U Turn	22	3	5.35
		B255 to Bean Lane South	792	898	3.63
		Bean Lane North U Turn	0	1	1.43
		Bean Lane North to B255	136	177	3.28
		Bean Lane North to Bean Lane South	127	130	0.29
4	A2 WB Slip/Bean Lane Roundabout	A2 WB offslip to Bean Lane NW	1,243	1,214	0.83
		A2 WB offslip to Bean Lane South	63	54	1.19
		Bean Lane NW to A2 WB onslip	683	788	3.86
		Bean Lane NW U Turn	0	0	0.00
		Bean Lane NW to Bean Lane South	382	382	0.02
		Bean Lane South to A2 WB onslip	81	84	0.38

No	Junction	Turning Movement	Modelled	Observed	GEH
		Bean Lane South to Bean Lane NW	282	288	0.35
5	A2 EB slip/A2260 Roundabout	A2 EB offslip to A2 EB onslip	992	985	0.22
		A2 EB offslip to A2260	214	275	3.89
		A2260 to A2 EB onslip	510	601	3.88
		A2260 U Turn	0	0	0.00
6	A2260/Substation Access Road Roundabout	A2260 South U Turn	0	0	0.00
		A2260 South to A2260 North	249	296	2.85
		A2260 South to A2260 East	0	2	2.02
		A2260 South to Substation Access Road	1	0	1.41
		A2260 North to A2260 South	403	452	2.36
		A2260 North U Turn	0	0	0.00
		A2260 North to A2260 East	508	593	3.63
		A2260 North to Substation Access Road	1	3	1.44
		A2260 East to A2260 South	0	43	9.25
		A2260 East to A2260 North	212	232	1.34
		A2260 East U Turn	0	1	1.43
		A2260 East to Substation Access Road	2	5	1.64
		Substation Access Road to A2260 South	3	4	0.57
		Substation Access Road to A2260 North	0	0	0.00
		Substation Access Road to A2260 East	2	2	0.02
7	International Way/Ebbsfleet Gateway/Southfleet Road Roundabout	A2260 South U Turn	0	0	0.00
		A2260 South to International Way	39	57	2.60
		A2260 South to Southfleet Road	236	262	1.62
		A2260 South to Ebbsfleet Gateway	187	206	1.32
		Ebbsfleet Gateway to A2260 South	618	752	5.12
		Ebbsfleet Gateway to Southfleet Road	72	53	2.41
		Ebbsfleet Gateway U Turn	0	1	1.43
		International Way to A2260 South	23	26	0.70
		International Way to Southfleet Road	0	0	0.00
		International Way to Ebbsfleet Gateway	3	3	0.03
		Southfleet Road to A2260 South	269	280	0.65
		Southfleet Road to International Way	4	5	0.51
		Southfleet Road U Turn	0	0	0.00
		Southfleet Road to Ebbsfleet Gateway	41	34	1.21
8	International Way/Ebbsfleet Gateway	Ebbsfleet Gateway South to Ebbsfleet Gateway North	179	196	1.27
		Ebbsfleet Gateway South to International Way	54	56	0.27
		Ebbsfleet Gateway North to Ebbsfleet Gateway South	474	536	2.77

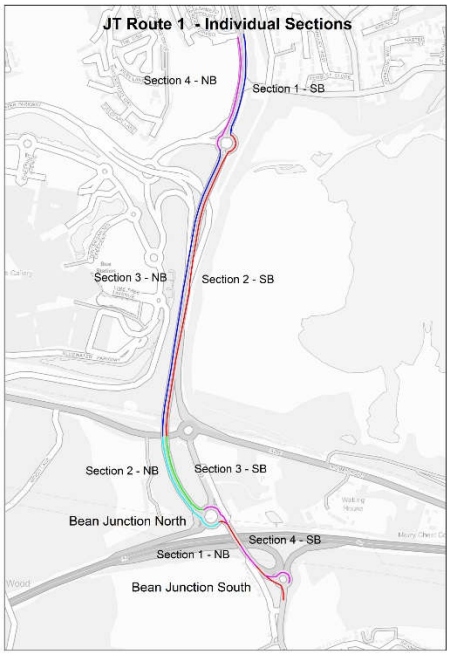
No	Junction	Turning Movement	Modelled	Observed	GEH
		Ebbsfleet Gateway North to International Way	77	70	0.79
		International Way to Ebbsfleet Gateway North	120	70	5.11
		International Way to Ebbsfleet Gateway South	230	271	2.57
9	Thames Way/Ebbsfleet Gateway	Ebbsfleet Gateway to Thames Way South	159	130	2.39
		Ebbsfleet Gateway to Thames Way North	145	135	0.82
		Thames Way South to Ebbsfleet Gateway	282	299	1.01
		Thames Way North to Ebbsfleet Gateway	270	297	1.61
		Thames Way North to Thames Way South	171	161	0.79
		Thames Way South to Thames Way North	106	120	1.32
10	Springhead Road/Thames Way Roundabout	Thames Way West to Springhead Road South	142	105	3.35
		Thames Way West to Thames Way East	187	181	0.43
		Thames Way West to Springhead Road North	11	12	0.36
		Thames Way West U Turn	0	1	1.43
		Springhead Road North to Springhead South	138	141	0.29
		Springhead Road North to Thames Way East	6	7	0.44
		Springhead Road North U Turn	0	3	2.47
		Springhead Road North to Thames Way West	19	26	1.56
		Thames Way East to Springhead Road South	295	291	0.23
		Thames Way East U Turn	0	0	0.00
		Thames Way East Springhead Road North	3	3	0.03
		Thames Way East to Thames Way West	219	235	1.07
		Springhead Road South U Turn	0	2	2.02
		Springhead Road South to Thames Way East	363	362	0.04
		Springhead Road South to Springhead Road North	230	236	0.40
		Springhead Road South to Thames Way West	150	164	1.10
11	Springhead Road/ Local Access Road/Enterprise Park	Springhead Road South to Springhead Road North	667	684	0.65
		Springhead Road South to Springhead Enterprise park	7	12	1.68
		Springhead Road South to Local Access Road	4	8	1.68
		Springhead Road North to Springhead Road South	546	513	1.44
		Springhead Road North to Springhead Enterprise park	24	26	0.49

No	Junction	Turning Movement	Modelled	Observed	GEH
		Springhead Road North to Local Access Road	5	7	0.86
		Springhead Enterprise park to Springhead Road North	61	72	1.38
		Springhead Enterprise park to Springhead Road South	43	47	0.57
		Springhead Enterprise park to Local Access Road	0	0	0.00
		Local Access Road to Springhead Road North	14	15	0.33
		Local Access Road to Springhead Road South	14	19	1.31
		Local Access Road to Springhead Road Enterprise park	0	0	0.00
12	Springhead Road/Enterprise Park	Springhead Road South to Springhead Road North	649	666	0.64
		Springhead Road South to Springhead Enterprise park	20	26	1.34
		Springhead Road North to Springhead Road South	600	573	1.12
		Springhead Road North to Springhead Enterprise park	2	3	0.66
		Springhead Enterprise park to Springhead Road South	49	56	0.96
		Springhead Enterprise park to Springhead Road North	28	33	0.83
13	Springhead Road/Haldane Garden/Springhead Parkway	Springhead Road South to Springhead Road North	643	671	1.08
		Springhead Road South to Springhead Parkway	53	57	0.54
		Springhead Road South to Haldane Garden	14	20	1.53
		Springhead Road North to Springhead Parkway	32	31	0.26
		Springhead Road North to Haldane Garden	3	5	1.04
		Springhead Road North to Springhead Road South	615	591	0.97
		Haldane Garden to Springhead Road North	6	10	1.47
		Haldane Garden to Springhead Road South	8	11	1.03
		Springhead Parkway to Springhead Road North	19	18	0.16
		Springhead Parkway to Haldane Garden	0	0	0.00
		Springhead Parkway to Springhead Road South	32	33	0.10
14	Springhead Road/Waterdales	Springhead Road South to Springhead Road North	697	726	1.07
		Spirnghead Road South to Waterdales	34	42	1.25
		Springhead Road North to Springhead Road South	599	590	0.36
		Springhead Road North to Waterdales	65	68	0.39
		Waterdales to Springhead Road North	14	19	1.31

No	Junction	Turning Movement	Modelled	Observed	GEH
		Waterdales to Springhead Road South	21	21	0.08
15	Springhead Road/Hall Road/Sainsbury's Access	Hall Road East to Hall Road South	417	472	2.62
		Hall Road East U Turn	0	2	2.02
		Hall Road East to Sainsbury's Access	58	55	0.41
		Hall Road East to Springhead Road North	109	72	3.86
		Hall Road South U Turn	115	154	3.34
		Hall Road South to Hall Road East	848	810	1.32
		Hall Road South to Springhead Road North	543	571	1.18
		Hall Road South to Sainsbury's Access	346	348	0.11
		Springhead Road North to Hall Road South	498	495	0.15
		Springhead Road North to Hall Road East	73	70	0.33
		Springhead Road North to Sainsbury's Access	64	67	0.39
		Springhead Road North U Turn	0	1	1.43
		Sainsbury's Access to Hall Road South	210	315	6.51
		Sainsbury's Access to Hall Road East	104	164	5.17
		Sainsbury's Access U Turn	0	0	0.00
		Sainsbury's Access to Springhead Road North	79	130	5.01
16	Hall Road/A2 East Slip	A2 East offslip to Hall Road North	1,046	1,083	1.13
		Hall Road North to Hall Road South	684	872	6.74
		Hall Road South to A2 East onslip	445	463	0.85
		Hall Road North to A2 East onslip	558	575	0.71
		Hall Road South to Hall Road North	801	780	0.73
17	Hall Road/New Barn Road/Station Road Roundabout	Hall Road U Turn	0	1	1.43
		Hall Road to Station Road	94	115	2.05
		Hall Road to A2 WB onslip	231	380	8.50
		Hall Road to New Barn Road	357	382	1.28
		A2 WB offslip to Hall Road	338	306	1.77
		A2 WB offslip to Station Road	88	84	0.38
		A2 WB offslip to New Barn Road	149	140	0.71
		Station Road to Hall Road	568	579	0.46
		Station Road U Turn	0	0	0.00
		Station Road to A2 WB onslip	40	50	1.47
		Station Road to New Barn Road	33	35	0.27
		New Barn Road to Hall Road	341	340	0.06
		New Barn Road to Station Road	6	7	0.44
		New Barn Road to A2 WB onlsip	67	76	1.10

Appendix G. Operational Model Journey Time Comparisons

G.1 Individual JT Section Maps


JT Route 1 - Individual Sections
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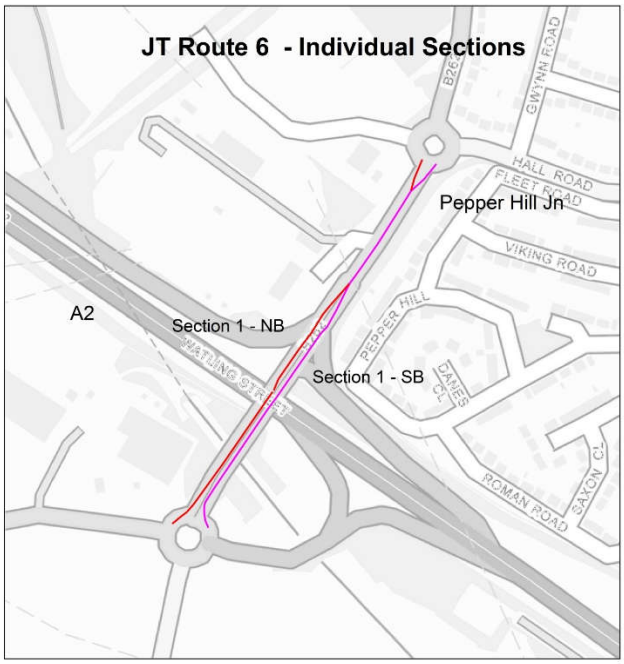
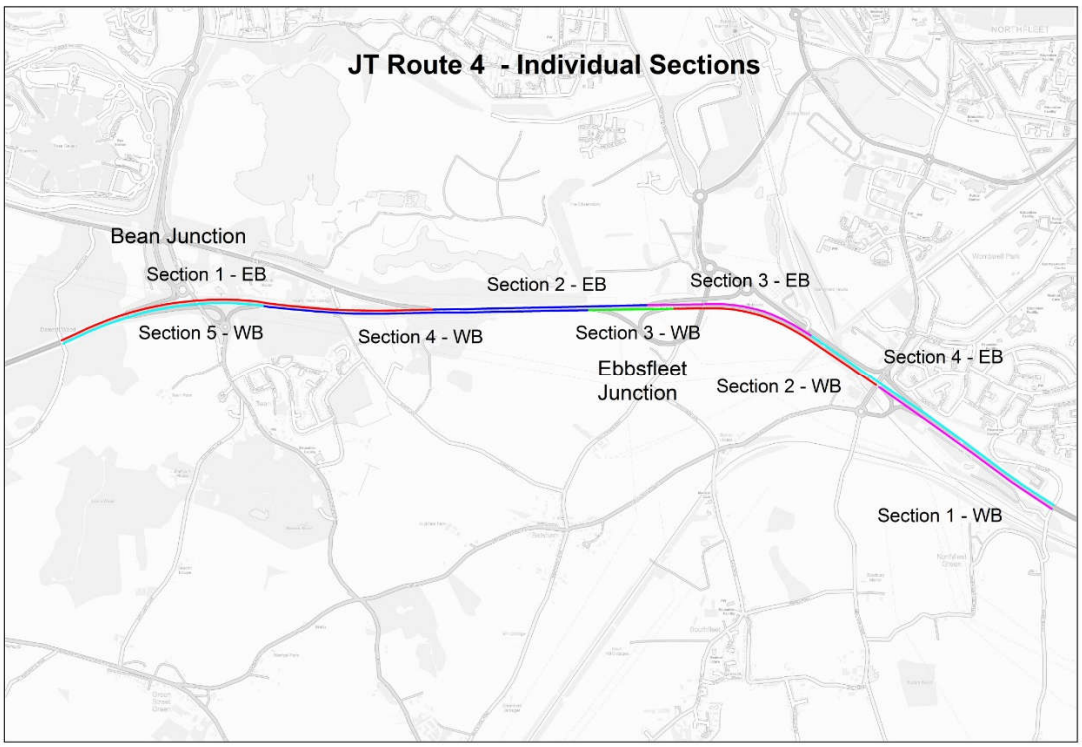
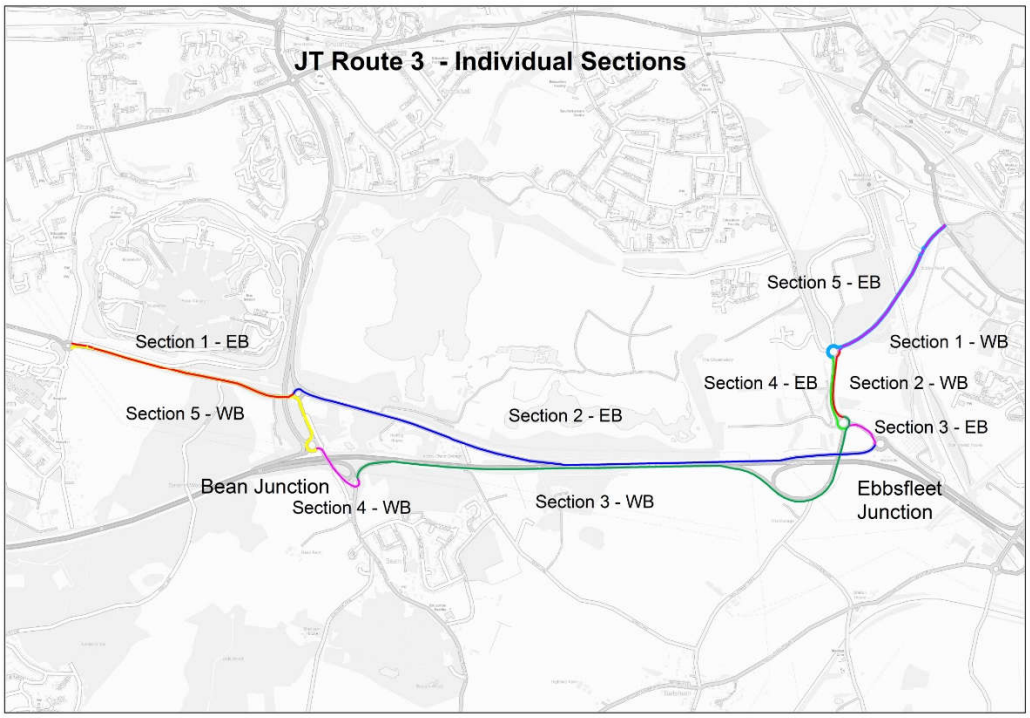
Section 1 - SB
Section 3 - NB
Section 2 - SB
Section 2 - NB
Section 3 - SB
Bean Junction North
Section 4 - SB
Section 1 - NB
Bean Junction South







G.2 AM Peak Hour JT Sections

Table G. 1 Bean lane Roundabout Approach Road from South to B255/Bluewater Parkway Roundabout

Description - Route 1 NB	Cum Length (m)	Cum Modelled (s)	Cum Observed (s)	% Difference
Bean lane Roundabout Approach Road from South	280	24	24	-1%
Bean Lane/B255 Roundabout Approach from south	636	47	47	2%
B255 NB above A296/Bean Lane Roundabout	1,529	97	90	8%
B255/Bluewater Parkway Roundabout	1,743	115	105	10%

Table G. 2 B255/Mounts Road Junction to Bean Lane/B255 Roundabout

Description - Route 1 SB	Cum Length (m)	Cum Modelled (s)	Cum Observed (s)	% Difference
B255/Mounts Road Junction	182	12	14	-12%
B255/Bluewater Parkway Roundabout	1,139	70	63	10%
B255 SB below A296/Bean Lane Roundabout	1,407	90	82	9%
Bean Lane/B255 Roundabout	1,737	117	110	6%

Table G. 3 Watling street/St James Lane Roundabout to A2260/International way Roundabout

Description - Route 3 EB	Cum Length (m)	Cum Modelled (s)	Cum Observed (s)	% Difference
Watling street/St James Lane Roundabout	1,061	55	59	-6%
A296/Bean Lane Roundabout	4,107	203	205	-1%
A2 slip/A2260 Roundabout	4,299	217	226	-4%
A2260/Substation Access Road Roundabout	4,727	244	257	-5%
A2260/International way Roundabout	5,690	355	416	-15%

Table G. 4 A2260/Thames way Junction to A2 slip/Bean Lane Roundabout North

Description - Route 3 WB	Cum Length (m)	Cum Modelled (s)	Cum Observed (s)	% Difference
A2260/Thames way Junction	861	74	81	-9%
A2260/International way Roundabout	1,231	96	107	-11%
A2260/Substation Access Road Roundabout	4,157	291	285	2%
A2 slip/Bean Lane Roundabout South	4,491	322	315	2%
A2 slip/Bean Lane Roundabout North	4,845	357	347	3%

Table G. 5 A2 EB near Bean to A2 EB after onslip

Description - Route 4 EB	Cum Length (m)	Cum Modelled (s)	Cum Observed (s)	% Difference
A2 EB near Bean	1,625	62	59	4%
A2 EB after onslip from Bean	2,718	102	99	3%
A2 EB after offslip towards A2260/Substation Access Roundabout	3,594	134	129	4%
A2 EB after onslip	4,294	160	155	4%

Table G. 6 A2 WB before Pepperhill Junction to A2 WB after offslip towards Bean Roundabout

Description - Route 4 WB	Cum Length (m)	Cum Modelled (s)	Cum Observed (s)	% Difference
A2 WB before Pepperhill Junction	314	21	30	-31%
A2 WB after Pepperhill Junction	1,450	99	124	-20%
A2 WB after offslip towards A2260/Substation Access Roundabout	1,895	129	156	-17%
A2 WB after onslip from A2260/Substation Access Roundabout	3,557	252	256	-2%
A2 WB after offslip towards Bean Roundabout	4,304	307	294	4%

Table G. 7 New Barn Road/Station Road Roundabout towards North

Description - Route 6 NB	Cum Length (m)	Cum Modelled (s)	Cum Observed (s)	% Difference
New Barn Road/Station Road Roundabout towards North	518	57	54	5%

Table G. 8 Hall Road/Springhead Road Roundabout

Description - Route 6 SB	Cum Length (m)	Cum Modelled (s)	Cum Observed (s)	% Difference
Hall Road/Springhead Road Roundabout	508	56	66	-15%

G.3 PM Peak Hour JT Sections

Table G. 9 Bean lane Roundabout Approach Road from South to B255/Bluewater Parkway Roundabout

Description - Route 1 NB	Cum Length (m)	Cum Modelled (s)	Cum Observed (s)	% Difference
Bean lane Roundabout Approach Road from South	280	25	26	-5%
Bean Lane/B255 Roundabout Approach from south	636	50	49	3%
B255 NB above A296/Bean Lane Roundabout	1,529	103	93	11%
B255/Bluewater Parkway Roundabout	1,743	123	108	14%

Table G. 10 B255/Mounts Road Junction to Bean Lane/B255 Roundabout

Description - Route 1 SB	Cum Length (m)	Cum Modelled (s)	Cum Observed (s)	% Difference
B255/Mounts Road Junction	182	13	14	-6%
B255/Bluewater Parkway Roundabout	1,139	73	65	12%
B255 SB below A296/Bean Lane Roundabout	1,407	93	88	5%
Bean Lane/B255 Roundabout	1,737	122	118	4%

Table G. 11 A2 slip to A2260/International way Roundabout

Description - Route 3 EB	Cum Length (m)	Cum Modelled (s)	Cum Observed (s)	% Difference
A2 slip/A2260 Roundabout	192	15	16	-7%
A2260/Substation Access Road Roundabout	620	42	46	-8%
A2260/International way Roundabout	1,583	157	172	-9%

Table G. 12 A2260/Thames way Junction to A2 slip/Bean Lane Roundabout North

Description - Route 3 WB	Cum Length (m)	Cum Modelled (s)	Cum Observed (s)	% Difference
A2260/Thames way Junction	861	85	85	0%
A2260/International way Roundabout	1,231	107	111	-4%
A2260/Substation Access Road Roundabout	4,157	244	245	-1%
A2 slip/Bean Lane Roundabout South	4,491	273	277	-1%
A2 slip/Bean Lane Roundabout North	4,845	308	309	0%

Table G. 13 A2 EB near Bean to A2 EB after onslip

Description - Route 4 EB	Cum Length (m)	Cum Modelled (s)	Cum Observed (s)	% Difference
A2 EB near Bean	1,625	65	74	-12%
A2 EB after onslip from Bean	2,718	110	120	-8%
A2 EB after offslip towards A2260/Substation Access Roundabout	3,594	144	153	-6%
A2 EB after onslip	4,294	171	182	-6%

Table G. 14 A2 WB before Pepperhill Junction to A2 WB after offslip towards Bean Roundabout

Description - Route 4 WB	Cum Length (m)	Cum Modelled (s)	Cum Observed (s)	% Difference
A2 WB before Pepperhill Junction	314	11	10	9%
A2 WB after Pepperhill Junction	1,450	52	50	5%
A2 WB after offslip towards A2260/Substation Access Roundabout	1,895	69	66	4%
A2 WB after onslip from A2260/Substation Access Roundabout	3,557	131	127	3%
A2 WB after offslip towards Bean Roundabout	4,304	158	152	4%

Table G. 15 New Barn Road/Station Road Roundabout towards North

Description - Route 6 NB	Cum Length (m)	Cum Modelled (s)	Cum Observed (s)	% Difference
New Barn Road/Station Road Roundabout towards North	518	62	65	-5%

Table G. 16 Hall Road/Springhead Road Roundabout

Description - Route 6 SB	Cum Length (m)	Cum Modelled (s)	Cum Observed (s)	% Difference
Hall Road/Springhead Road Roundabout	508	60	60	1%

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